

## **Appendix B: Pennsylvania Remining Site Study**



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The Pennsylvania Department of Environmental Protection (PA DEP) has been issuing remining permits since 1984. By 1997, over 260 remining permits had been issued throughout Pennsylvania. This number includes currently active and reclaimed sites. PA DEP routinely reviews self-monitoring reports from these permits to verify that water quality loading limits have not been exceeded. On an annual basis and for all bond release applications, the baseline pollution load is compared to recent pollution load data using a statistical protocol for determining whether there has been a significant increase in the baseline pollution load. If the analysis shows a statistically significant increase in the baseline pollution load, then the operator is required to treat the discharge to at least its original baseline loading rate and reclamation bonds are withheld until the discharge returns to baseline levels or below. Over 10 years of experience shows that baseline exceedences are a very rare occurrence. Of these 260 permits, only 5, or less than 2 percent, have ever registered significant increases from baseline pollution load, requiring long-term treatment. In 1998, PA DEP developed a remining database to determine the success of Pennsylvania's remining program in terms of water quality compliance, and the extent to which remining has reduced pollution loads from pre-existing mine discharges. These evaluations were made by comparing pre-mining and post-mining loads at individual pre-existing discharges for acidity, iron, manganese, aluminum, sulfate, and flow. Additionally, the data were broken down by best management practices (BMPs) that were implemented hydrologically upgradient from each discharge to allow evaluation of the efficiencies of individual and combined BMPs.

The database consists of 241 groundwater discharges (or hydrologic units) from 112 mine sites that were used for statistical analysis. These discharges are hydrologically connected to the mining and reflect the effects of the upgradient remining. Only mines that were Stage II bond released (completely backfilled and revegetated) were included. The sites in the database were further restricted to Pennsylvania's Bituminous Coal Field. This restriction was made because (1) the geology, hydrology, mining methods, and some of the BMPs in the Anthracite Region are substantially different from the Bituminous Region, (2) the Bituminous Region has had a much

greater number of remining permits issued and for a longer period of time, and (3) the Bituminous Region has geology, hydrology, mining methods, and BMPs similar to the rest of the Appalachians. The distribution of mine sites and discharges in the database are depicted by county on Figure B.1. As can be seen, remining sites are spread across the Bituminous Region. The remining sites are surface mines, with the exception of six coal refuse removal sites. There is a total of eight discharges associated with the coal refuse removal sites, compared to 233 discharges associated with surface mining.

The effluent limits which are typically established by best professional judgement (BPJ) analysis are acidity, total iron, total manganese, and total aluminum. Load based BPJ limits are established using baseline data. If water quality concentrations are below best available technology (BAT) limits, then BAT limits are applied. Acidity and sulfate are the most common post-mining pollutants from remining sites, thus their greater representation in the statistical database (Table B.1) than for other pollutants. Iron, manganese, and aluminum to varying degrees meet BAT requirements and therefore do not always undergo a BPJ analysis, thus their less frequent representation in the database.

Acidity has been selected in Pennsylvania for BPJ analysis preferentially to pH because a baseline load can be calculated for acidity, whereas pH does not readily lend itself to calculation of load. Acidity includes "potential" acidity which is latent in "mineral" acidity, a form that is often not represented by pH. Mineral acidity is that portion of acidity that is generated when iron, manganese, aluminum, and some other metals precipitate from solution (see equation 1, Section 2.0). When determining the amount of chemical treatment needed to neutralize acid or to bring the pH up to a certain level, it is acidity that is used to perform these calculations, not pH. Acidity is in units of mg/L calcium carbonate, the same as used for alkalinity.

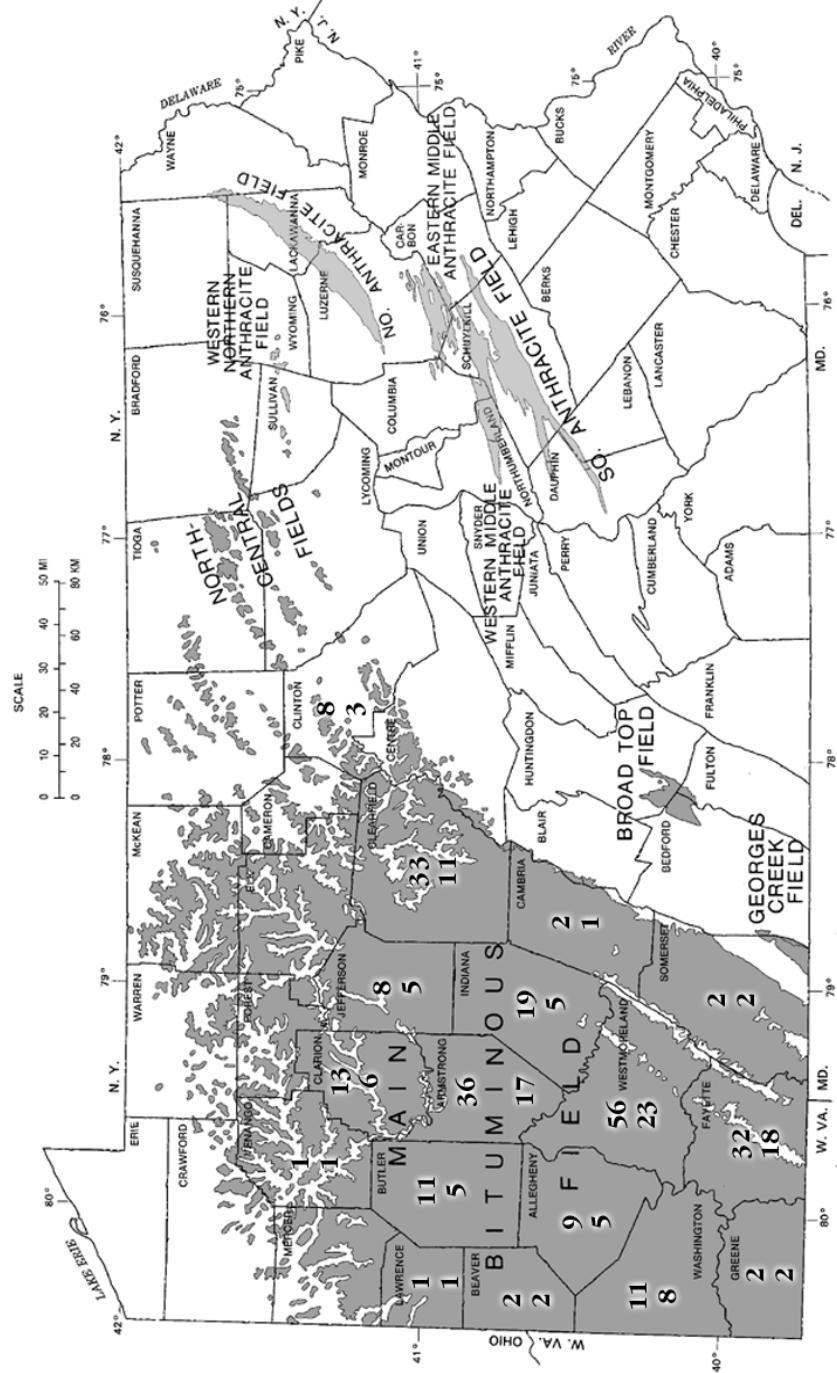
**Figure B.1 Mine Sites and Discharges by County in Pennsylvania****DISTRIBUTION OF PENNSYLVANIA COALS**

Table B.1 is a compilation of baseline and post-mining median loading for acidity, iron, manganese, aluminum, sulfate, and flow for each discharge, and a sum of the total change in pollution load for each water quality parameter. From left to right, Table B.1 shows monitoring point ID (listed by permit number), permit baseline year (pre-mining data), review year (post-mining data), baseline median load, post-mining median load, percent change in median, baseline upper confidence interval, baseline lower confidence interval, post-mining upper confidence interval, post-mining lower confidence interval, and "evaluation." The statistical summaries for baseline and post-mining loads typically include 12 monthly samples. The confidence intervals give the range of values around the median in which the true population median occurs with a 95% probability. Thus, a comparison between baseline and post-mining confidence intervals indicates whether or not there has been a statistically significant change in water quality. The four evaluation categories are no significant difference, significantly better, significantly worse and eliminated.

- The eliminated category occurs where the post-mining upper confidence interval is zero lbs/day.
- Significantly better occurs where the post-mining upper confidence limit is less than the baseline lower confidence limit.
- Significantly worse occurs where the post-mining lower confidence limit is higher than the baseline upper confidence limit.
- No significant difference occurs where the confidence intervals overlap.

**Table B.1: Summary Statistics of Baseline and Post-Mining Loadings, by Parameter**

- 1= Discharge Significantly Worsened  
 2= No Significant Difference in Discharge  
 3= Discharge Significantly Better  
 4= Discharge Eliminated

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
<b>Acidity</b>											
Allegheny-1	10	1986	1995	26.81	66.8	149.16%	34.87	18.71	105.34	28.26	2
	2	1986	1995	18.01	2.34	-87.01%	21.25	14.76	2.92	1.76	3
Allegheny-2	S-6	1989	1998	5.83	6.04	3.60%	12.43	-0.77	8.54	3.55	2
	S-7	1989	1989	554.92	0	-100.00%	844.09	265.74	0	0	4
Allegheny-3	d-1p	1991	1998	4.18	1.3	-68.90%	5.04	3.33	1.96	0.64	3
Allegheny-4	BS12	1991	1995	196.4	10.07	-94.87%	209.51	183.29	22.36	-2.22	3
	MD1	1991	1995	119.48	22.44	-81.22%	139.22	99.73	37.96	6.93	3
	MD2	1991	1995	14.85	0	-100.00%	26.68	3.02	0.19	-0.19	3
Allegheny-5	MP-2	1993	1995	8.17	1.33	-83.72%	15.64	0.7	2.52	0.14	2
Armstrong-1	1A	1984	1990	2.04	1.57	-23.04%	3.28	0.79	3.5	-0.37	2
Armstrong-2	D-1	1986	1995	7.5	5.65	-24.67%	17.71	-2.71	9.21	2.09	2
	D-112	1986	1995	0.42	0.75	78.57%	1.05	-0.21	1.2	0.3	2
	D-4	1986	1995	6.83	9.91	45.10%	11.34	2.32	20.45	-0.63	2
Armstrong-3	w-1A	1986	1992	11.65	9.38	-19.48%	15.64	7.65	12.72	6.02	2
	w-2A	1986	1992	11.12	37.5	237.23%	16.24	5.98	57.3	16.3	1
	w-3A	1986	1992	0.72	0.24	-66.67%	1.57	-0.14	0.28	0.19	2
Armstrong-4	GK-13	1987	1993	0.54	0.2	-62.96%	0.75	0.31	0.46	-0.07	2
	GK-17	1987	1988	0	0.01	N/A	0.01	0	0.03	0	2
Armstrong-5	MP-2	1988	1993	4.27	0	-100.00%	6.28	2.26	0	0	4
Armstrong-7	MP14	1988	1997	1.54	2.5	62.34%	2.72	0.36	3.2	1.8	2
	MP15	1988	1997	11.01	1.42	-87.10%	18.7	3.32	6.08	-3.25	2
	MP17	1988	1997	0.79	12.43	1473.42%	5.46	-3.89	20.58	4.27	2
	MP21	1988	1997	0.04	0.2	400.00%	0.15	-0.06	0.84	-0.45	2
	MP22	1988	1997	0.1	1.72	1620.00%	0.75	-0.55	6.64	-3.22	2
	MP23	1988	1997	13.72	9.41	-31.41%	21.27	6.18	21.87	-3.07	2
	MP24	1988	1997	1.2	1.25	4.17%	2.02	0.38	2.09	0.41	2
Armstrong-8	c3-a	1988	1998	13.97	0	-100.00%	24.98	2.96	0	0	4
	md-2	1988	1998	1.85	4.76	157.30%	3.63	0.06	7.13	2.39	2
Armstrong-9	HU1	1988	1998	19.56	22.82	16.67%	28.78	10.35	34.62	11.01	2
Armstrong-10	C-11	1989	1995	2.9	1.66	-42.76%	3.44	2.36	2.54	0.77	2
	S-20	1989	1995	47.1	50.13	6.43%	54.02	40.18	61.63	38.63	2
Armstrong-11	HU1	1990	1997	3.02	0	-100.00%	6.69	-0.65	0	0	4

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
Armstrong-12	mp2	1991	1995	19.73	0.5	-97.47%	33.38	6.09	0.79	0.21	3
	mph	1991	1995	3.92	1.09	-72.19%	14.64	-6.8	1.64	0.54	2
Armstrong-13	41	1990	1995	9.17	0	-100.00%	12.13	6.2	0.02	-0.02	3
	Unit 2	1990	1995	185.99	3.32	-98.21%	212.48	159.5	5.43	1.2	3
Armstrong-14	1	1991	1993	2.38	0	-100.00%	4.82	-0.07	0	0	4
Armstrong-15	V2	1992	1997	32.79	10.96	-66.58%	42.53	23.05	22.33	-0.41	3
Armstrong-16	HU1	1993	1998	0.07	0	-100.00%	0.57	-0.43	0	0	4
Armstrong-17	HU1	1994	1998	0.39	0.17	-56.41%	0.63	0.15	0.4	-0.05	2
Armstrong-18	D1	1994	1998	0.26	0	-100.00%	0.37	0.14	0.01	-0.01	3
Beaver-1	S-10	1988	1995	4.84	0.43	-91.12%	6.67	3.01	3.35	-2.49	2
Butler-1	5W	1986	1991	1.71	1.95	14.04%	6.77	-3.35	3.55	0.35	2
Butler-2	2W	1984	1989	0.11	0	-100.00%	0.36	-0.14	0	0	4
	5AW	1984	1989	0.17	0.28	64.71%	0.66	-0.32	0.7	-0.14	2
	8W	1984	1989	0.94	0.19	-79.79%	1.55	0.33	0.36	0.03	2
Butler-3	S-116	86	1994	29.85	7.45	-75.04%	35.8	23.9	12.66	2.24	3
	S-13	86	1994	5.34	0	-100.00%	7.52	3.16	0	0	4
	S-200	86	1994	0.85	0	-100.00%	2.33	-0.63	0	0	4
	S-91	86	1994	3.59	0	-100.00%	5.31	1.87	0	0	4
	S-95/96	86	1994	1.7	0	-100.00%	3.01	0.39	1.62	-1.62	2
Butler-4	DR2	1991	1998	17.62	0	-98.58%	22.9	12.34	0	0	4
Butler-5	1	1991	1998	50.75	20.95	-58.72%	62.77	38.72	70.79	-28.89	2
Cambria-1	MP 9	1990	1995	3.49	0.03	-99.14%	4.63	2.35	0.06	0	3
	MP 13	1990	1995	6.65	0	-100.00%	8.71	4.58	0	0	4
Clarion-1	SP-1	1985	1995	192.07	83.01	-56.78%	244.57	139.57	100.01	66.01	3
	SP-28	1985	1995	31.73	12.22	-61.49%	44.73	18.73	16.4	8.05	3
	SP-5	1985	1995	4.32	0	-100.00%	5.81	2.83	0.27	-0.27	3
	SP-6	1985	1995	75	0	-100.00%	99.91	50.09	0	0	4
Clarion-2	1	1986	1989	0.19	0.401	111.05%	0.35	0.03	1.01	-0.2	2
Clarion-3	RH-78	1990	1994	4.95	0	-100.00%	5.81	4.1	0	0	4
	RH-79	1990	1994	3.91	0	-100.00%	4.71	3.11	0	0	4
	RH-82	1990	1994	2.48	0.05	-97.98%	3.08	1.87	0.1	-0.01	3
	RH-84	1990	1994	1.44	0.58	-59.72%	1.82	1.07	1.53	-0.37	2
	RH-91	1990	1994	0.07	0	-100.00%	0.13	0.02	0.02	-0.02	2
	RH-93	1990	1994	0.17	0.01	-94.12%	0.27	0.08	0.02	0	3
	RH-94	1990	1994	1.56	0	-100.00%	1.82	1.3	0	0	4
	RH-96	1990	1994	4.81	0	-100.00%	8.15	1.46	0	0	4
Clarion-4	1	1990	1996	0.47	0	-100.00%	0.62	0.32	0	0	4
	2	1990	1996	0.84	0.13	-84.52%	1.07	0.61	0.25	0.02	3
Clarion-5	DR-1	1990	1992	17.6	39.67	125.40%	29.46	10.52	73.23	6.11	2

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
Clarion-6	1	1992	1998	0.11	0	-100.00%	0.22	0	0	0	4
	2	1992	1998	0.01	0	-100.00%	0.06	-0.04	0	0	4
	3	1992	1998	0.66	0	-100.00%	1.22	0.09	0	0	4
Clearfield-1	unit 1	1985	1998	230.02	71.33	-68.99%	289.12	170.92	107.81	34.85	3
Clearfield-2	W10	1985	1998	23.08	23.6	2.25%	38.1	8.04	50.89	-3.69	2
	W42	1985	1998	31.27	47.17	50.85%	48.42	14.11	73.56	20.78	2
	W43	1985	1998	69.05	125.32	81.49%	111.18	26.91	215.63	35.02	2
	W44	1985	1998	36.61	47.08	28.60%	61.14	12.06	70.36	23.8	2
Clearfield-3	SF-1	1986	1998	0.42	0.11	-73.81%	0.59	0.24	0.18	0.03	3
	SF10	1986	1998	2.15	0.03	-98.60%	3.69	0.59	0.07	0	3
	SF4	1986	1998	0.14	0.06	-57.14%	0.25	0.02	0.13	-0.01	2
	SF6	1986	1998	0.59	0.49	-16.95%	9.14	-7.97	0.98	0.01	2
	SF61	1986	1998	8.47	1.06	-87.49%	14.84	2.08	6.53	-4.42	2
Clearfield-4	tk-18	1985	1997	35.59	42.44	19.25%	48.81	22.37	51.62	33.26	2
	tk-21	1985	1997	18.3	1.65	-90.98%	29.08	7.52	6.35	-3.06	3
	TK-3	1985	1997	38.46	29.6	-23.04%	42.63	34.29	38.05	21.16	2
	tk-37	1985	1997	7.19	5.33	-25.87%	11.29	3.09	6.67	3.98	2
	tk-4	1985	1997	1.28	0.41	-67.97%	1.77	0.79	0.52	0.3	3
	tk-7	1985	1997	4.33	0	-100.00%	5.47	3.19	0.01	-0.01	3
Clearfield-5	SV-5	1988	1992	8.15	12	47.24%	10.56	5.73	15	10	2
	SV-8	1988	1992	12.78	11.56	-9.55%	19.68	5.87	15.02	8.1	2
Clearfield-6	R-3	1988	1995	10.58	0.065	-99.39%	15.01	6.14	0.4	-0.27	3
	R-5	1988	1995	4.19	1.4	-66.59%	6.47	1.9	2.09	0.71	2
	R-8	1988	1995	12.18	0	-100.00%	19.48	4.87	0	0	4
Clearfield-7	12	1989	1997	1.35	0.97	-28.15%	2.28	0.41	1.68	0.26	2
	13	1989	1997	209.67	173.81	-17.10%	269.13	150.12	203.94	143.68	2
Clearfield-8	TK4	1990	1996	0.92	0.4	-56.52%	1.24	0.6	0.54	0.31	3
	TK7	1990	1996	1.44	0	-100.00%	2.1	0.78	0.01	-0.01	3
Clearfield-9	1	1990	1994	18.03	0	-100.00%	29.12	6.94	0	0	4
	2	1990	1994	0.19	0	-100.00%	0.75	-0.87	0	0	4
Clearfield-10	HU 1	1992	1998	4.85	4.34	-10.52%	8.22	1.48	6.86	1.82	2
	HU 2	1992	1998	1.5	0.75	-50.00%	1.99	1	1.15	0.35	2
	HU 3	1992	1998	8.24	3.17	-61.53%	10.62	5.86	4.39	1.95	3
Clearfield-11	subf-a	1993	1994	5.84	6.5	11.30%	8.95	2.74	8.53	4.46	2
	subf-b	1993	1994	0.4	0.13	-67.50%	0.67	0.14	0.35	0	2
	subf-c	1993	1994	8.57	2.85	-66.74%	10.88	6.26	5.09	0.61	3
Clinton-1	96	1981	1995	11.12	0	-100.00%	18.63	3.6	0	0	4
	97	1981	1995	11.12	0	-100.00%	18.63	3.6	0	0	4
	13	1981	1995	20.49	0	-100.00%	31.44	9.53	0	0	4
	15A	1981	1995	8.11	0	-100.00%	13.64	2.58	0	0	4
	SNW 1A	1981	1996	41.22	32.27	-21.71%	61.34	21.06	51.09	13.5	2
Clinton-2	GR-9	1988	1993	21.45	2.59	-87.93%	44.59	-1.69	24.17	-18.99	2
Clinton-3	SEH-31	1990	1993	19.94	6.21	-68.86%	25.79	14.09	-6.02	18.44	3
	SHE-30	1990	1993	0.95	5.1	436.84%	1.85	0.05	7.09	3.1	1
Fayette-1	mp-4	1989	1993	12.9	4.88	-62.17%	16.95	8.84	5.12	4.64	3
	mp-5	1989	1993	14.95	0	-100.00%	20.33	9.56	0	0	4
	mp-6	1989	1993	2.24	0	-100.00%	4.79	-0.32	0	0	4
	mp-8	1989	1993	15.11	1.17	-92.26%	19.63	10.58	1.23	1.11	3

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
Fayette-2	HU-1	1984	1992	622.81	167.96	-73.03%	919.04	326.57	185.12	150.79	3
Fayette-3	MS100	1988	1995	38.94	0.3	-99.23%	54.78	23.1	0.72	-0.12	3
Fayette-4	MP6	1988	1993	2.97	3.09	4.04%	6.72	-0.79	11.17	-4.98	2
Fayette-5	mp-4	1988	1998	1408.74	932.4	-33.81%	1723	1094	1063	801	3
	mp-hua	1988	1998	1441	1039	-27.9%	2218	663	1384	694	2
Fayette-6	MP-1	1988	1994	170.29	15.73	-90.76%	252.6	87.98	44.07	-12.61	3
Fayette-7	MP48	1989	1996	418.49	317.51	-24.13%	546.47	290.51	505.22	129.79	2
	MP49	1989	1996	92.84	135.78	46.25%	134.95	50.72	177.84	93.72	2
Fayette-8	MP-15	1988	1994	142.71	64.08	-55.10%	170.13	115.29	193.76	-65.6	2
Fayette-9	MP-28	1990	1998	149.83	123.78	-17.39%	247.01	52.65	200.72	46.85	2
Fayette-10	mp-1	1989	1992	161.85	38.45	-76.24%	204.87	118.84	62.16	14.74	3
	mp-11	1989	1992	30.61	15.88	-48.12%	43.13	18.09	34.52	-2.77	2
	mp-2	1989	1992	4.23	8.51	101.18%	5.87	2.59	12.05	4.98	2
Fayette-11	mp 29	1991	1998	30.78	28.22	-8.32%	71.31	-9.75	45.92	10.52	2
Fayette-12	Mp68	1991	1997	2.46	3.75	52.44%	4.91	0.01	6.47	1.03	2
Fayette-13	D5	1991	1995	12.85	9.84	-23.42%	17.64	8.05	13.08	6.59	2
Fayette-14	mp-19	1991	1998	5.84	0	-100.00%	12.46	-0.77	0	0	4
	mp-57	1991	1998	29.06	3.33	-88.54%	58.11	0	8.56	-1.89	2
	mp-60	1991	1998	79.71	32.07	-59.77%	130.24	29.18	71	-6.86	2
	mp56	1991	1998	54.62	511.67	836.78%	175.15	-65.91	918.61	104.72	2
Fayette-15	MD1/MD2	1991	1995	1.68	0.04	-97.62%	5.61	-2.26	0.1	-0.03	2
	MD8/BS29	1991	1995	14.59	1.06	-92.73%	36.39	-7.21	1.31	0.8	2
Fayette-16	MP-42	1994	1996	3.8	0.65	-82.89%	22.71	-15.12	11.82	-10.52	2
	MP-8	1994	1996	92.32	32.94	-64.32%	132.84	51.79	78.99	-13.11	2
Greene-1	MP-51	1987	1988	16.35	0	-100.00%	22.77	9.93	0	0	4
Greene-2	hu1	1989	1994	106.48	19.65	-81.55%	186.91	26.06	34.31	4.99	2
Indiana-1	H	1988	1995	150.24	173.09	15.21%	225.69	74.77	222.89	123.29	2
	J	1988	1995	52.76	55.06	4.36%	90.82	14.69	113.87	-3.76	2
	K	1988	1995	19.6	23.88	21.84%	24.89	14.3	38.6	9.15	2
	L	1988	1995	23.93	0.42	-98.24%	31.92	15.93	12.56	-11.73	3
	M	1988	1995	11.58	7.4	-36.10%	25.25	-2.1	16.13	-1.33	2
	N	1988	1995	3.98	0.56	-85.93%	10.29	-2.34	1.01	0.11	2
Indiana-2	O	1988	1995	0	0	N/A	0.01	0	0	0	4
	MP-5	1988	1997	209.22	116.77	-44.19%	348.3	70.12	200.3	33.25	2
Indiana-3	MP-15	1988	1997	6.09	0.28	-95.40%	9.93	2.23	0.56	0	3
	1 (A)	1992	1998	1.34	0	-100.00%	2.62	0.07	0.01	-0.01	3
Indiana-4	2 (B)	1992	1998	147.38	15.38	-89.56%	180.55	114.2	23.62	7.13	3
	3 (C)	1992	1996	171.92	83.29	-51.55%	213.48	130.36	234.27	-67.69	2
	4 (D)	1992	1998	70.4	7.64	-89.15%	87.85	52.95	16.45	-1.17	3
	1	1992	1998	6.12	6.16	0.65%	7.18	5.07	8.85	3.47	2
Jefferson-1	MP-51	1992	1998	15.39	0	-100.00%	19	11.78	0	0	4
	MP-52	1992	1998	1.2	0.54	-55.00%	6.24	-3.84	0.86	0.22	2
Jefferson-2	1	1984	1993	14.28	66.62	366.53%	29.91	-1.35	154.42	-21.17	2
Jefferson-3	MP-13	1986	1996	1.6	2.38	48.75%	2.14	1.06	4.87	-0.11	2
Jefferson-4	HU-1	1989	1992	0.01	0	-100.00%	0.09	-0.07	0	0	4
Jefferson-5	HU-1	1989	1996	48.11	1.09	-97.73%	56.81	39.41	4.25	-2.07	3
Jefferson-6	MP-33	1989	1998	3.97	3.77	-5.04	6.6	1.34	5.43	2.1	2
	MP-8B	1989	1998	152.39	99.52	-34.69%	187.55	117.23	162.98	36.06	2
Jefferson-6	S-25	1993	1998	1.67	0.11	-93.41%	2.86	0.48	0.18	0.04	3
	s-34	1993	1998	1.8	1.05	-41.67%	2.93	1.1	2.89	-0.89	2

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Jefferson-7	MP-1	1991	1995	0.36	0	-100.00%	0.52	0.19	0	0	4
Lawrence-1	1	1992	1998	3.47	0	-100.00%	4.98	1.96	0	0	4
Somerset-1	SP16	1989	1998	20.18	22.12	9.61%	26	14.36	24.09	20.14	2
Venango-1	1	1989	1994	20.94	11.49	-45.13%	39.36	11.14	21.25	1.72	2
Wash. -1	HU1	1986	1993	295.51	39.39	-86.67%	388.62	202.78	57.28	21.49	3
Wash. -2	A	1985	1998	115.68	0.1	-99.91%	160.2	71.16	0.17	0.03	3
Wash. -3	CV103	1985	1998	9411.66	1324.6	-85.93%	11146.9	7676.39	2020.61	628.6	3
	CV4	1985	1998	1350.09	118.4	-91.23%	1585.7	1114.47	142.12	94.67	3
Wash. -4	MP-1	1989	1998	652.11	6.03	-99.08%	1044.41	259.8	8.44	3.61	3
	MP-2	1989	1998	535.6	0	-100.00%	747.88	322.24	0	0	4
Wash. -5	d-1	1987	1996	4.18	0.79	-81.10%	5.04	3.33	1.71	-0.14	3
Wash. -7	se1a	1995	1998	1.1	0	-100.00%	3.57	-1.38	0	0	4
West-moreland-1	MP10	1984	1993	30.64	27.71	-9.56%	39.11	22.16	47.49	7.91	2
	MP7	1984	1993	30.28	45.08	48.88%	40.96	19.59	67.15	23	2
	MP9	1984	1993	0.21	0.69	228.57%	0.48	-0.05	1.29	0.08	2
West-moreland-2	S8	1985	1994	30.84	7.78	-74.77%	43.85	17.83	17.79	-2.23	3
West-moreland-3	CP2	1986	1990	11.77	4.52	-61.60%	16.98	6.55	6.84	2.19	2
	Culvert	1986	1986	3.58	0.22	-93.85%	6.03	1.12	0.54	-0.11	3
West-moreland-4	MD-1	1986	1990	3.74	5.41	44.65%	25.67	-18.2	18.86	-8.05	2
	MD-3	1986	1990	5.94	0	-100.00%	54.68	-42.8	0.12	-0.13	2
	MD-4	1986	1990	16.99	9.68	-43.03%	41.96	-7.98	13.7	5.64	2
	MD-6	1986	1990	167.25	0.97	-99.42%	443.44	-108.96	0.98	0.96	2
	MD-7	1986	1990	125.77	28.78	-77.12%	250.89	0.63	50.23	7.32	2
West-moreland-5	HU-1	1986	1996	570.84	401.91	-29.59%	972.94	168.74	602.25	201.56	2
West-moreland-6	M	1985	1993	8.21	7.02	-14.49%	14.86	1.55	9.76	4.28	2
	N	1985	1993	2.13	0.57	-73.24%	5.18	0	2.64	-1.52	2
West-moreland-7	MP-3	1986	1991	9.76	0.92	-90.57%	10.48	9.03	1.49	0.36	3
	MP-4	1986	1991	284	365.04	28.54%	569.5	-1.5	608.76	121.33	2
West-moreland-8	MP-4	1987	1998	12.15	0	-100.00%	18.04	6.26	0	0	4
West-moreland-9	MP-46	1987	1993	590.44	525.86	-10.94%	748.65	432.22	762.95	288.77	2
	MP-47	1987	1993	469.53	663.91	41.40%	687.42	251.63	1230.27	97.53	2
	MP-51	1987	1993	8.1	18.78	131.85%	11.25	4.94	30.47	7.08	2
	MP-52	1987	1993	2.96	2.26	-23.65%	3.96	1.95	9.6	-5.08	2
	MP-56	1987	1993	6.34	6.06	-4.42%	9.69	2.98	10.54	1.57	2
	MP-60	1987	1993	6.36	2.69	-57.70%	9.68	3.02	6.94	-1.58	2
	MP-A	1987	1995	5.95	1.4	-76.47%	12.75	-0.87	2.06	0.75	2

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West-moreland-10	MP12	1988	1995	37.68	0.76	-97.98%	93.48	-18.13	1.11	0.41	2
West-moreland-11	MP3	1988	1992	1245.66	842.7	-32.35%	1413.04	1078.28	1042.3	643.1	3
West-moreland-12	MP-1	1988	1995	439.13	0	-100.00%	594.61	283.65	0	0	4
	MP-2	1988	1995	8.55	7.76	-9.24%	14.41	2.68	14.77	0.75	2
	MP-3	1988	1995	41.79	30.24	-27.64%	72.07	11.51	36.04	24.44	2
	MP-4	1988	1995	81.63	0.37	-99.55%	129.46	33.8	3.54	-2.79	3
	MP-5	1988	1995	34.39	83.86	143.85%	73.68	-4.91	131.99	34.73	2
	MP-6	1988	1995	59.26	106.05	78.96%	88.79	29.73	222.74	-10.64	2
	MP-A	1988	1995	55.37	42.1	-23.97%	92.66	16.08	67.76	16.43	2
	MP-B	1988	1995	34.61	18.24	-47.30%	51.68	17.54	26.01	10.48	2
	MP-C	1988	1995	12.69	20.34	60.28%	28.11	-2.73	28.62	12.06	2
	MP-D	1988	1995	1.76	0.5	-71.59%	2.82	0.69	1.18	-0.18	2
West-moreland-13	mp-a	1989	1993	5.89	3.17	-46.18%	7.44	4.35	7.38	-1.06	2
	mp-b	1989	1993	48.24	18.1	-62.48%	58.58	37.89	31.2	5	3
West-moreland-14	HU-1	1988	1995	32.71	10.66	-67.41%	38.39	27.02	15.82	5.49	3
West-moreland-15	SLK-GW-27	1994	1999	5.87	0.9	-84.67%	6.99	4.75	1.56	0.25	3
West-moreland-16	mp-8	1990	1995	21.31	18.58	-12.81%	26.52	16.09	28.22	8.97	2
West-moreland-17	SW18	1989	1993	1.23	0	-100.00%	1.4	1.05	0	0	4
West-moreland-18	1	1989	1995	0.85	0.67	-21.18%	0.99	0.71	0.99	0.35	2
	2	1989	1995	5.3	5.1	-3.77%	7.71	2.89	11.45	-1.25	2
	3	1989	1995	4.27	7.17	67.92%	6.49	2.05	15.75	-1.41	2
West-moreland-19	MP16	1993	1999	0.75	0.49	-34.67%	0.95	0.55	0.65	0.32	2
	MP5	1993	1999	1.1	0.02	-98.18%	1.58	0.63	0.09	-0.05	3
	MP6	1993	1999	2.2	1.74	-20.91%	2.82	1.58	2.79	0.69	2
West-moreland-20	mp-7	1991	1998	1.02	0	-100.00%	1.71	0.34	0.07	-0.07	3
West-moreland-21	MP3	1992	1997	4.44	0.88	-80.18%	6.05	2.83	1.69	0.06	3
West-moreland-22	103	1994	1998	1.44	0	-100.00%	1.76	1.13	0	0	4
	69	1994	1998	6.52	0	-100.00%	13.9	-0.86	0	0	4
	mp-13	1994	1998	0.24	0	-100.00%	0.63	-0.16	0	0	4

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	mp-16	1994	1998	0.07	0	-100.00%	0.12	0.01	0	0	4
<b>Aluminum</b>											
Allegheny-1	10	1986	1995	2.86	6.15	115.03%	4.9	0.82	9.27	3.01	2
	2	1986	1995	1.46	0.16	-89.04%	2.47	0.48	0.2	0.11	3
Allegheny-3	d-1p	1991	1998	0.59	0.12	-79.66%	0.61	0.57	0.15	0.08	3
Allegheny-4	BS12	1991	1995	22.01	4.07	-81.51%	23.99	20.03	5.73	2.4	3
	MD1	1991	1995	11.78	6.17	-47.62%	12.74	10.82	8.3	4.05	3
	MD2	1991	1995	0.09	0	-100.00%	0.73	-0.55	0.06	-0.06	2
Armstrong-5	MP-2	1988	1993	0.3	0	-100.00%	0.36	0.23	0	0	4
Armstrong-7	MP14	1988	1997	0.18	0.25	38.89%	0.31	0.05	0.29	0.2	2
	MP15	1988	1997	0.56	0.11	-80.36%	1.08	0.04	0.68	-0.47	2
	MP17	1988	1997	0.1	1.42	1320.00%	0.3	-0.09	2.27	0.55	1
	MP22	1988	1997	0.01	0.1	900.00%	0.05	-0.03	0.37	-0.18	2
	MP23	1988	1997	1.04	0.5	-51.92%	1.5	0.08	1.04	-0.05	2
	MP24	1988	1997	0.1	0.11	10.00%	0.17	0.03	0.17	0.04	2
Armstrong-12	mp2	1991	1995	0.43	0.1	-76.74%	0.66	0.2	0.15	0.06	3
	mph	1991	1995	0.43	0.2	-53.49%	0.66	0.2	0.27	0.13	2
Armstrong-13	41	1990	1995	1.23	0	-100.00%	1.77	0.7	0	0	4
	Unit 2	1990	1995	20.53	0.21	-98.98%	22.47	18.6	0.39	0.09	3
Armstrong-14	1	1991	1993	0.2	0	-100.00%	0.31	0.1	0	0	4
Armstrong-15	V2	1992	1997	2.2	0.78	-64.55%	2.85	1.55	1.34	0.22	3
Butler-3	S-116	86	1994	3.55	0.37	-89.58%	4.43	2.67	2.95	-2.2	2
	S-13	86	1994	0.59	0	-100.00%	0.91	0.26	0	0	4
	S-200	86	1994	0.12	0.1	-16.67%	0.35	-0.11	0.62	-0.43	2
	S-91	86	1994	0.44	0	-100.00%	0.69	0.198	0	0	4
	S-95/96	86	1994	0.26	0	-100.00%	0.45	0.07	0.09	-0.09	2
Butler-4	DR2	1991	1998	0.39	0	-100%	0.57	0.22	0	0	4
Clarion-4	2	1990	1996	0.02	0.01	-50.00%	0.03	0.02	0.02	0	2
Clarion-5	DR-1	1990	1992	1.96	3.56	81.63%	4.19	0.92	6.19	0.93	2
Clearfield-4	tk-18	1985	1997	4.65	2.2	-52.69%	6.22	3.08	2.76	1.65	3
	tk-21	1985	1997	3.34	0.22	-93.41%	5.35	1.33	0.69	-0.26	3
	TK-3	1985	1997	2.77	0.91	-67.15%	3.88	1.66	1.1	0.72	3
	tk-37	1985	1997	0.34	0.63	85.29%	0.91	-0.23	0.83	0.43	2
	tk-4	1985	1997	0.06	0.01	-83.33%	0.15	-0.03	0.02	0.01	2
	tk-7	1985	1997	0.39	0	-100.00%	0.45	0.33	0	0	4
Clearfield-7	12	1989	1997	0.08	0.08	0.00%	0.14	0.02	0.13	0.03	2
	13	1989	1997	10.45	9.21	-11.87%	13.55	7.34	11.19	7.24	2

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Clearfield-11	subf-a	1993	1994	0.58	0.61	5.17%	0.79	0.37	0.79	0.42	2
	subf-b	1993	1994	0.11	0.03	-72.73%	0.16	0.06	0.06	0	2
	subf-c	1993	1994	0.63	0.24	-61.90%	0.87	0.38	0.42	0.05	2
Fayette-1	mp-4	1989	1993	0.92	0.52	-43.48%	1.42	0.41	0.54	0.5	2
	mp-5	1989	1993	1.24	0	-100.00%	1.56	0.92	0	0	4
	mp-6	1989	1993	0.17	0	-100.00%	0.34	-0.01	0	0	4
	mp-8	1989	1993	0.29	0.02	-93.10%	0.72	-0.16	0.02	0.02	2
Fayette-2	HU-1	1984	1992	81.56	22.39	-72.55%	119.91	43.2	28.44	16.33	3
Fayette-4	MP6	1988	1993	0.06	0.27	350.00%	0.55	-0.44	0.95	-0.4	2
Fayette-6	MP-1	1988	1994	11.94	1.04	-91.29%	16.8	7.07	3.23	-1.15	3
Fayette-7	MP48	1989	1996	23.55	28.69	21.83%	34.15	12.95	43.05	14.33	2
	MP49	1989	1996	6.88	12.82	86.34%	10.99	2.77	16.3	9.34	2
Fayette-8	MP-15	1988	1994	10.21	6.13	-39.96%	14.83	5.59	23.1	-10.84	2
Fayette-9	MP-28	1990	1998	16.57	6.9	-58.36%	26.52	6.62	12.9	1.9	2
Fayette-10	mp-11	1989	1992	3.14	1.27	-59.55%	4.89	1.39	3.18	-0.64	2
	mp-2	1989	1992	0.39	0.97	148.72%	0.52	0.26	1.33	0.6	1
Fayette-11	mp 29	1991	1998	2.23	2.24	0.45%	6.05	-1.59	2.97	1.51	2
Fayette-12	Mp68	1991	1997	0.34	0.43	26.47%	0.65	0.03	0.75	0.1	2
Fayette-14	mp-19	1991	1998	0.65	0	-100.00%	1.17	0.14	0	0	4
	mp-57	1991	1998	2.9	0.16	-94.48%	5.89	-0.08	0.4	-0.07	2
	mp-60	1991	1998	7.83	3.5	-55.30%	12.09	3.58	6.7	0.3	2
	mp56	1991	1998	6.85	53.42	679.85%	16.56	-2.85	91.33	15.52	2
Fayette-15	MD8/BS29	1991	1995	1.35	0	-100.00%	3.57	-0.86	0	0	4
Fayette-16	MP-42	1994	1996	0.37	0.07	-81.08%	1.7	-0.97	0.69	-0.55	2
	MP-8	1994	1996	6.23	2.22	-64.37%	8.55	3.91	4.32	0.13	2
Jefferson-3	HU-1	1989	1992	0	0	N/A	0.01	0	0	0	4
Jefferson-4	HU-1	1989	1996	2.73	0.02	-99.27%	3.4	2.06	0.04	-0.01	3
Jefferson-5	MP-33	1989	1998	0.24	0	-100.00%	0.62	-0.13	0	0	4
	MP-8B	1989	1998	7.32	4.59	-37.30%	8.52	6.13	6.44	2.74	2
Jefferson-6	S-25	1993	1998	0.07	0.01	-85.71%	0.12	0.04	0.01	0.01	3
	s-34	1993	1998	0.08	0.11	37.50%	0.12	0.05	0.26	-0.04	2
Jefferson-7	MP-1	1991	1995	0.04	0	-100.00%	0.05	0.02	0	0	4
Venango-1	1	1989	1994	4.08	1.45	-64.46%	12.46	1.34	2.37	0.53	2
Wash. -1	HU1	1986	1993	36.3	2.45	-93.25%	47.26	25.34	4.03	0.86	3
Wash. -2	A	1985	1998	20.02	0.04	-99.80%	29.31	10.73	0.09	0	3
Wash. -4	MP-1	1989	1998	50.9	0.18	-99.65%	72.81	28.99	0.3	0.06	3
	MP-2	1989	1998	44.76	0	-100.00%	58.22	31.31	0	0	4
Wash. -5	d-1	1987	1996	0.59	0.1	-83.05%	0.61	0.57	0.33	-0.13	3
Wash. -7	se1a	1995	1998	0.09	0	-100.00%	0.42	-0.23	0	0	4
West-moreland-1	MP10	1984	1993	1.14	2.96	159.65%	2.29	-0.01	4.7	1.21	2
	MP7	1984	1993	1.51	3.88	156.95%	2.43	0.6	5.62	2.14	2
	MP9	1984	1993	0.01	0.07	600.00%	0.04	-0.03	0.12	0.01	2
West-moreland-2	S8	1985	1994	2.63	0.78	-70.34%	3.94	1.31	1.47	0.1	2
West-moreland-3	CP2	1986	1990	1.68	0.63	-62.50%	2.48	0.87	0.88	0.36	2
	Culvert	1986	1986	1.54	0.13	-91.56%	5.2	-2.12	0.25	0	2
West-moreland-5	HU-1	1986	1996	52.83	26.86	-49.16%	114.57	-8.91	46.87	6.85	2

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West-moreland-6	M	1985	1993	0.4	0.54	35.00%	0.73	0.07	0.8	0.28	2
	N	1985	1993	0.11	0.07	-36.36%	0.33	0	0.36	-0.24	2
West-moreland-7	MP-3	1986	1991	0.77	0.01	-98.70%	1.04	0.48	0.02	0.01	3
	MP-4	1986	1991	23.86	38.29	60.48%	47.88	-0.18	44.81	31.76	2
West-moreland-8	MP-4	1987	1998	0.64	0	-100.00%	0.9	0.38	0	0	4
West-moreland-9	MP-46	1987	1993	40.11	39.55	-1.40%	50.39	29.84	55.21	23.88	2
	MP-47	1987	1993	40.8	53.41	30.91%	58.68	22.92	105.82	1	2
	MP-51	1987	1993	0.56	1.88	235.71%	0.8	0.3	2.91	0.84	1
	MP-52	1987	1993	0.34	0.29	-14.71%	0.45	0.22	1.3	-0.72	2
	MP-56	1987	1993	0.71	0.77	8.45%	1.03	0.37	1.49	0.04	2
	MP-60	1987	1993	1.12	0.6	-46.43%	1.58	0.65	1.17	0.03	2
	MP-A	1987	1995	0.24	0.03	-87.50%	0.79	-0.31	0.06	-0.01	2
West-moreland-10	MP12	1988	1995	4.53	5.73	26.49%	10.49	-1.45	8.81	2.65	2
West-moreland-12	MP-1	1988	1995	28.77	0	-100.00%	40.45	17.09	0	0	4
	MP-2	1988	1995	0.98	0.87	-11.22%	1.7	0.26	1.57	0.17	2
	MP-3	1988	1995	4.08	3.37	-17.40%	6.39	1.77	4.25	2.48	2
	MP-4	1988	1995	5.65	0.03	-99.47%	8.74	2.56	0.34	-0.27	3
	MP-5	1988	1995	3.34	6.88	105.99%	6.18	0.49	10.78	2.97	2
	MP-6	1988	1995	5.39	8.22	52.50%	7.69	3.09	17.67	-1.24	2
	MP-A	1988	1995	6.65	4.95	-25.56%	10.84	2.46	8.09	1.8	2
	MP-B	1988	1995	4.57	2.13	-53.39%	6.77	2.37	2.98	1.29	2
	MP-C	1988	1995	1.18	1.98	67.80%	2.47	-0.11	2.68	1.29	2
	MP-D	1988	1995	0.23	0.07	-69.57%	0.35	0.11	0.15	-0.02	2
West-moreland-13	mp-a	1989	1993	0.79	0.72	-8.86%	0.97	0.62	1.23	0.2	2
	mp-b	1989	1993	7.74	0.23	-97.03%	9.64	5.83	0.29	0.15	3
West-moreland-14	HU-1	1988	1995	2.73	0.08	-97.07%	3.33	2.14	0.23	-0.07	3
West-moreland-15	SLK-GW-27	1994	1999	0.03	0.02	-33.33%	0.04	0	0.05	0	2
West-moreland-16	mp-8	1990	1995	1.83	0.74	-59.56%	2.23	1.43	1.2	0.29	3
West-moreland-18	1	1989	1995	0.02	0.02	0.00%	0.02	0.01	0.03	0.01	2
	2	1989	1995	0.67	0.64	-4.48%	1	0.35	1.46	-0.19	2
	3	1989	1995	0.53	0.89	67.92%	0.84	0.21	1.79	0	2
West-moreland-19	MP16	1993	1999	0.07	0.03	-57.14%	0.09	0.06	0.03	0.02	3
	MP5	1993	1999	0.16	0	-100.00%	0.21	0.11	0	0	4
	MP6	1993	1999	0.07	0.26	271.43%	0.09	0.06	0.42	0.1	1

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West-moreland-23	103	1994	1998	0.12	0	-100.00%	0.17	0.08	0	0	4
	69	1994	1998	0.69	0	-100.00%	1.41	-0.04	0	0	4
<b>Iron</b>											
Allegheny-1	10	1986	1995	0.1	0.11	10.00%	0.15	0.04	0.19	0.03	2
	2	1986	1995	0.09	0.12	33.33%	0.11	0.05	0.15	0.07	2
Allegheny-2	S-6	1989	1998	0.37	3.5	845.95%	0.62	0.12	4.74	2.27	1
	S-7	1989	1989	24.63	1.55	-93.71%	33.57	15.68	3.41	-0.42	3
Allegheny-3	d-1p	1991	1998	0.06	0.03	-50.00%	0.09	0.02	0.05	0.01	2
Allegheny-4	BS12	1991	1995	4.7	0.88	-81.28%	4.91	4.49	1.06	0.7	3
	MD1	1991	1995	1.81	1.37	-24.31%	2.27	1.35	1.71	1.04	2
	MD2	1991	1995	0.02	0	-100.00%	0.04	0	0	0	4
Allegheny-5	MP-2	1993	1995	0.03	0.01	-66.67%	0.04	0.01	0.02	0	2
Armstrong-1	1A	1984	1990	0.39	0.34	-12.82%	0.7	0.07	0.55	0.13	2
Armstrong-2	D-1	1986	1995	1.55	0.01	-99.35%	3.73	-0.64	0.02	0	2
	D-112	1986	1995	0	0.02	N/A	0.01	0	0.03	0	2
	D-4	1986	1995	0.05	0.06	20.00%	0.09	0.01	0.11	0.01	2
Armstrong-3	w-1A	1986	1992	0.27	0.16	-40.74%	0.39	0.13	0.22	0.1	2
	w-2A	1986	1992	0.78	5.36	587.18%	1.26	0.3	8.13	2.59	1
	w-3A	1986	1992	0.14	0.23	64.29%	0.23	0.03	0.29	0.1	2
Armstrong-5	MP-2	1988	1993	0.02	0	-100.00%	0.02	0.01	0	0	4
Armstrong-6	1	1988	1995	0.41	0.02	-95.12%	0.58	0.25	0.02	0.01	3
Armstrong-7	MP14	1988	1997	0.01	0.01	0.00%	0.01	0	0.01	0	2
	MP15	1988	1997	0.75	0.29	-61.33%	1.07	0.43	0.91	-0.34	2
	MP17	1988	1997	0.03	0.29	866.67%	0.08	-0.01	0.43	0.14	1
	MP22	1988	1997	0	0.03	N/A	0.75	-0.55	0.27	-0.21	2
	MP23	1988	1997	0.16	0.09	-43.75%	0.29	0.02	0.27	-0.1	2
	MP24	1988	1997	0.01	0.01	0.00%	0.03	-0.01	0.02	0	2
Armstrong-9	HU1	1988	1998	0.13	0.03	-76.92%	0.21	0.06	0.05	0.01	3
Armstrong-10	C-11	1989	1995	0.51	0.24	-52.94%	0.6	0.42	0.3	0.19	3
	S-20	1989	1995	9.21	7.09	-23.02%	10.45	7.97	8.73	5.44	2
Armstrong-11	HU1	1990	1997	0.04	0	-100.00%	0.07	0	0	0	4
Armstrong-12	mp2	1991	1995	1.97	0.27	-86.29%	3.21	0.72	0.33	0.21	3
	mph	1991	1995	0.02	0.01	-50.00%	0.03	0	0.01	0	2
Armstrong-13	41	1990	1995	0.02	0	-100.00%	0.03	0.01	0	0	4
	48	1990	1995	0.24	0	-100.00%	0.32	0.17	0	0	4
	Unit 2	1990	1995	23.76	0.42	-98.23%	27.89	19.62	0.62	0.22	3
Armstrong-14	1	1991	1993	0.21	0	-100.00%	0.43	0	0	0	4

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Armstrong-15	V2	1992	1997	0.3	0.13	-56.67%	0.44	0.16	0.3	-0.04	2
Armstrong-16	HU1	1993	1998	0.08	0.34	325.00%	0.16	0	0.5	0.18	1
Beaver-1	S-10	1988	1995	3.81	2.99	-21.52%	4.43	3.18	3.99	1.99	2
Butler-1	5W	1986	1991	0.51	0.22	-56.86%	0.76	0.26	0.36	0.08	2
Butler-2	2W	1984	1989	0.01	0	-100.00%	0.01	0.01	0	0	4
	5AW	1984	1989	0.02	0.01	-50.00%	0.03	0.01	0.02	0	2
	8W	1984	1989	0.02	0	-100.00%	0.02	0.02	0.01	0	3
Butler-3	S-116	1986	1994	0.01	0.01	0.00%	0.01	0.01	0.02	0	2
	S-13	1986	1994	0.02	0	-100.00%	0.05	-0.02	0	0	4
	S-200	1986	1994	0.03	0.01	-66.67%	0.04	0.02	0.05	-0.03	2
	S-91	1986	1994	0	0	N/A	0.01	-0.01	0	0	4
Butler-4	DR-2	1991	1998	7.05	0	-100%	8.97	5.13	0	0	4
Butler-5	1	1991	1998	0.36	0.17	-52.78%	0.47	0.26	0.42	-0.09	2
Cambria-1	MP 9	1990	1995	0.01	0.02	100.00%	0.02	0	0.03	0.01	2
	MP 13	1990	1995	0.02	0	-100.00%	0.03	0	0	0	4
Clarion-1	SP-1	1985	1995	107.89	24.34	-77.44%	119.01	96.77	30.16	18.52	3
	SP-28	1985	1995	45.56	15.51	-65.96%	61.06	30.06	19.19	11.82	3
	SP-5	1985	1995	0.11	0	-100.00%	0.19	0.02	0	0	4
	SP-6	1985	1995	27.58	0	-100.00%	36.23	18.94	0	0	4
Clarion-2	1	1986	1989	0.02	1.125	5525.00%	0.04	0	1.54	0.7	1
Clarion-3	RH-78	1990	1994	1.52	0	-100.00%	1.76	1.29	0	0	4
	RH-79	1990	1994	0.36	0	-100.00%	0.46	0.27	0	0	4
	RH-82	1990	1994	0.23	0	-100.00%	0.27	0.2	0	0	4
	RH-84	1990	1994	0.28	0.25	-10.71%	0.35	0.22	0.48	0.01	2
	RH-91	1990	1994	0.38	0	-100.00%	0.46	0.29	0.11	-0.11	3
	RH-93	1990	1994	0.28	0.07	-75.00%	0.32	0.24	0.17	-0.03	3
	RH-94	1990	1994	0.65	0	-100.00%	0.74	0.56	0	0	4
Clarion-4	RH-96	1990	1994	0.03	0	-100.00%	0.06	0.01	0	0	4
	1	1990	1996	0.04	0	-100.00%	0.06	0.02	0	0	4
Clarion-5	2	1990	1996	0.22	0.08	-63.64%	0.27	0.16	0.11	0.04	3
	DR-1	1990	1992	0.36	2.63	630.56%	0.53	0.24	5.85	-0.6	2
Clearfield-1	unit 1	1985	1998	47.81	18.73	-60.82%	59.45	36.17	23.58	13.88	3
Clearfield-2	W10	1985	1998	1.34	0.61	-54.48%	1.82	0.85	0.95	0.28	2
	W42	1985	1998	0.59	0.27	-54.24%	0.74	0.43	0.35	0.18	3
	W43	1985	1998	0.94	0.91	-3.19%	1.45	0.43	1.49	0.34	2
	W44	1985	1998	0.5	0.41	-18.00%	0.85	0.13	0.54	0.29	2
Clearfield-3	SF-1	1986	1998	0.23	0.06	-73.91%	0.29	0.16	0.12	0.01	3
	SF10	1986	1998	0.18	0	-100.00%	0.29	0.06	0	0	4
	SF4	1986	1998	0.03	0	-100.00%	0.05	0	0.01	-0.01	2
	SF6	1986	1998	0.01	0	-100.00%	0.02	-0.01	0.01	0	2
	SF61	1986	1998	0.49	0.05	-89.80%	0.94	0.03	0.22	-0.12	2
Clearfield-4	tk-18	1985	1997	6.47	9.87	52.55%	8.85	4.09	10.22	9.51	1
	tk-21	1985	1997	0.08	0.03	-62.50%	0.14	0.02	0.06	0	2
	TK-3	1985	1997	13.52	8.71	-35.58%	14.68	12.36	11.32	6.1	3
	tk-37	1985	1997	0.01	0.01	0.00%	0.01	0.01	0.01	0	2
	tk-4	1985	1997	0.21	0.16	-23.81%	0.31	0.11	0.24	0.09	2

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	tk-7	1985	1997	0.21	0	-100.00%	0.29	0.13	0	0	4
Clearfield-5	SV-5	1988	1992	0.3	0.36	20.00%	0.35	0.23	0.43	0.33	2
	SV-8	1988	1992	0.09	0.1	11.11%	0.12	0.05	0.13	0.07	2
Clearfield-6	R-3	1988	1995	0.04	0	-100.00%	0.06	0.02	0.01	-0.01	3
	R-5	1988	1995	0.01	0	-100.00%	0	0	0	0	4
	R-8	1988	1995	3.38	2.06	-39.05%	4.99	1.75	3.44	0.67	2
Clearfield-7	12	1989	1997	0.04	0.01	-75.00%	0.08	0.01	0.02	0	2
	13	1989	1997	10.52	6.75	-35.84%	14.5	6.54	7.83	5.67	2
Clearfield-8	TK4	1990	1996	0.22	0.12	-45.45%	0.3	0.15	0.2	0.04	2
	TK7	1990	1996	0.04	0	-100.00%	0.06	0.01	0	0	4
Clearfield-9	1	1990	1994	2.81	0	-100.00%	4.1	1.52	0	0	4
	2	1990	1994	0.01	0	-100.00%	0.04	0	0	0	4
Clearfield-10	HU 1	1992	1998	0.02	0.01	-50.00%	0.05	-0.01	0.02	0	2
	HU 2	1992	1998	0.01	0	-100.00%	0.01	0.01	0	0	4
	HU 3	1992	1998	0.01	0	-100.00%	0.02	0.01	0	0	4
Clearfield-11	subf-a	1993	1994	0.03	0.02	-33.33%	0.04	0.02	0.03	0.01	2
	subf-b	1993	1994	0.01	0	-100.00%	0.01	0	0	0	4
	subf-c	1993	1994	0.02	0.01	-50.00%	0.03	0.01	0.01	0	2
Clinton-1	96	1981	1995	0.04	0	-100.00%	0.06	0.01	0	0	4
	97	1981	1995	0.04	0	-100.00%	0.06	0.01	0	0	4
	13	1981	1995	0.08	0	-100.00%	0.1	0.05	0	0	4
	15A	1981	1995	0.07	0	-100.00%	0.1	0.03	0	0	4
	SNW 1A	1981	1996	1.7	1.23	-27.65%	2.57	0.8	1.7	0.76	2
Clinton-2	GR-9	1988	1993	2.6	0.37	-85.77%	5.05	0.15	4.02	-3.28	2
Clinton-3	SEH-31	1990	1993	0.17	0.07	-58.82%	0.23	0.11	0.09	0.05	3
	SHE-30	1990	1993	0.37	1.11	200.00%	0.76	-0.02	1.31	0.91	1
Fayette-1	mp-4	1989	1993	0.88	0.22	-75.00%	1.25	0.51	0.23	0.2	3
	mp-5	1989	1993	1.6	0	-100.00%	2.31	0.87	0	0	4
	mp-6	1989	1993	0.39	0	-100.00%	0.75	0.03	0	0	4
	mp-8	1989	1993	2.49	0.09	-96.39%	3.87	1.11	0.1	0.09	3
Fayette-2	HU-1	1984	1992	37.36	11.59	-68.98%	45.42	29.29	13.08	10.08	3
Fayette-4	MP6	1988	1993	0.17	0.11	-35.29%	0.39	-0.06	0.49	-0.26	2
Fayette-5	mp-4	1988	1998	286	68.69	-75.98%	338	235	80.46	56.91	3
	mp-hua	1988	1998	211	55.27	-73.81%	295	127	72.69	37.85	3
Fayette-6	MP-1	1988	1994	15.4	0.6	-96.10%	21.44	9.36	1.37	-0.16	3
Fayette-7	MP48	1989	1996	28.52	23.44	-17.81%	40.04	17	38.42	8.47	2
	MP49	1989	1996	3.03	5.87	93.73%	4.78	1.27	7.92	3.81	2
Fayette-8	MP-15	1988	1994	0.05	0.05	0.00%	0.07	0.04	0.15	-0.06	2
Fayette-9	MP-28	1990	1998	1.47	0.77	-47.62%	2.83	0.1	1.31	0.23	2
Fayette-10	mp-1	1989	1992	4.27	1.25	-70.73%	5.34	3.21	1.95	0.54	3
	mp-11	1989	1992	0.34	0.2	-41.18%	0.43	0.26	0.34	0.06	2
	mp-2	1989	1992	0.05	0.16	220.00%	0.09	0.02	0.27	0.05	2
Fayette-11	mp 29	1991	1998	1.94	1.72	-11.34%	4.13	-0.25	3.78	-0.35	2
Fayette-12	Mp68	1991	1997	0.05	0.06	20.00%	0.08	0.02	0.08	0.04	2
Fayette-13	D5	1991	1995	1.19	1.71	43.70%	1.8	0.58	2.33	1.09	2
Fayette-14	mp-19	1991	1998	0.27	0	-100.00%	0.41	0.13	0	0	4
	mp-57	1991	1998	0.12	0.01	-91.67%	0.28	-0.04	0.03	-0.01	2
	mp-60	1991	1998	0.38	0.17	-55.26%	0.79	-0.02	0.29	0.04	2
	mp56	1991	1998	1.11	11.29	917.12%	3.75	-1.53	19.48	3.09	2

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Fayette-15	MD1/MD2	1991	1995	0.03	0.01	-66.67%	0.06	-0.01	0.02	0	2
	MD8/BS29	1991	1995	0.23	0.17	-26.09%	0.52	-0.05	0.21	0.12	2
Fayette-16	MP-42	1994	1996	0.05	0	-100.00%	0.43	-0.34	0.14	-0.14	2
	MP-8	1994	1996	1.79	0.61	-65.92%	2.41	1.17	1.18	0.04	2
Greene-1	MP-51	1987	1988	0.05	0	-100.00%	0.11	-0.02	0	0	4
Greene-2	hu1	1989	1994	4.01	0.41	-89.78%	4.74	3.29	0.86	-0.05	3
Indiana-1	H	1988	1995	6.96	5.19	-25.43%	9.9	4.01	6.77	3.6	2
	J	1988	1995	1.84	1.07	-41.85%	3.02	0.65	2.01	0.24	2
	K	1988	1995	0.62	0.43	-30.65%	0.83	0.41	0.69	0.18	2
	L	1988	1995	1.35	0.01	-99.26%	2.14	0.54	0.41	-0.38	3
	M	1988	1995	0.11	0.07	-36.36%	0.25	-0.04	0.15	0	2
	N	1988	1995	0.05	0.01	-80.00%	0.58	-0.49	0.02	0	2
	O	1988	1995	0	0	N/A	0.01	0	0	0	4
Indiana-2	MP 5	1988	1997	13.63	4.34	-68.16%	22.86	4.38	6.77	1.92	2
	MP 15	1988	1997	0.18	0.09	-50.00%	0.25	0.1	0.15	0.04	3
Indiana-3	1 (A)	1992	1998	0.01	0	-100.00%	0.02	-0.01	0	0	4
	2 (B)	1992	1998	6.66	1.79	-73.12%	9.08	4.25	2.3	1.28	3
	3 (C)	1992	1996	4.76	18.73	293.49%	5.96	3.55	56.41	-18.95	2
Jefferson-1	1	1984	1993	0.23	0.31	34.78%	0.36	0.1	0.75	-0.12	2
Jefferson-2	MP-13	1986	1996	0.02	0.03	50.00%	0.03	-0.01	0.05	0.02	2
Jefferson-4	HU-1	1989	1996	0.71	0.53	-25.35%	1.13	0.29	1.32	-0.25	2
Jefferson-5	MP-33	1989	1998	0.17	0	-100.00%	0.28	0.06	0	0	4
	MP-8B	1989	1998	8.55	4.57	-46.55%	10.54	6.55	6.3	2.84	3
Jefferson-6	S-25	1993	1998	0.01	0.01	0.00%	0.01	0	0.01	0.01	2
	s-34	1993	1998	0.01	0.01	0.00%	0.01	0	0.01	0.01	2
Jefferson-7	MP-1	1991	1995	0	0	N/A	0.01	0	0	0	4
Lawrence-1	1	1992	1998	0.25	0	-100.00%	0.42	0.07	0	0	4
Somerset-1	SP16	1989	1998	0.04	0.03	-25.00%	0.04	0.03	0.04	0.02	2
Somerset-2	1	1993	1998	0.09	0.31	244.44%	0.11	0.06	0.97	-0.34	2
Venango-1	1	1989	1994	0.25	0.64	156.00%	0.41	0.16	0.95	0.33	2
Wash. -1	HU1	1986	1993	29.24	18.77	-35.81%	52.38	6.1	27.17	10.37	2
Wash. -2	A	1985	1998	1.93	0.02	-98.96%	2.55	1.32	0.03	0.01	3
Wash. -3	CV103	1985	1998	38.7	353.52	813.49%	47.19	30.19	460.23	246.8	1
	CV4	1985	1998	17.36	31.59	81.97%	23.31	11.4	39.81	23.36	1
Wash. -4	MP-1	1989	1998	8.49	0.22	-97.41%	11.52	5.47	0.32	0.12	3
	MP-2	1989	1998	6.38	0	-100.00%	8.84	3.91	0	0	4
Wash. -5	d-1	1987	1996	0.06	0.02	-66.67%	0.09	0.02	0.03	0.01	2
Wash. -6	D5	1992	1997	4.08	0.46	-88.73%	5.44	2.72	0.55	0.36	3
West-moreland-1	MP10	1984	1993	0.1	0.1	0.00%	0.15	0.05	0.14	0.05	2
	MP7	1984	1993	0.76	0.74	-2.63%	1.14	0.38	1.28	0.2	2
	MP9	1984	1993	0.03	0.02	-33.33%	0.04	0.01	0.04	-0.01	2
West-moreland-2	S8	1985	1994	0.1	0.02	-80.00%	0.13	0.06	0.04	-0.01	3
West-moreland-3	CP2	1986	1990	0.03	0.17	466.67%	0.08	-0.03	0.24	0.09	1
	Culvert	1986	1986	0.15	0.02	-86.67%	1.12	-0.84	0.04	0	2

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West-moreland-4	MD-1	1986	1990	0.08	0.17	112.50%	0.7	-0.55	0.49	-0.16	2
	MD-3	1986	1990	0.17	0	-100.00%	2	-1.67	0	-0.01	4
	MD-4	1986	1990	0.75	0.28	-62.67%	2.15	-0.66	0.44	0.11	2
	MD-6	1986	1990	7.3	0.97	-86.71%	15.38	-0.8	1.55	0.39	2
	MD-7	1986	1990	3.8	0.89	-76.58%	7.68	-0.08	1.42	0.35	2
West-moreland-5	HU-1	1986	1996	46.62	22.48	-51.78%	79.07	14.16	38.11	6.85	2
West-moreland-6	M	1985	1993	0.08	0.09	12.50%	0.12	0.03	0.12	0.05	2
	N	1985	1993	0.02	0	-100.00%	0.05	0	0	0	4
West-moreland-7	MP-3	1986	1991	0.57	0.1	-82.46%	0.7	0.4	0.16	0.04	3
	MP-4	1986	1991	7.1	9.19	29.44%	13.29	0.89	13.83	4.56	2
West-moreland-8	MP-4	1987	1998	1.04	0	-100.00%	1.48	0.59	0	0	4
West-moreland-9	MP-46	1987	1993	53.49	63.29	18.32%	72.28	34.7	90.51	36.05	2
	MP-47	1987	1993	32.67	37.44	14.60%	50.74	14.59	84.01	-9.15	2
	MP-51	1987	1993	0.04	0.41	925.00%	0.06	0.02	0.74	0.07	1
	MP-52	1987	1993	0.01	0.01	0.00%	0.01	0	0.03	-0.01	2
	MP-56	1987	1993	0.01	0	-100.00%	0.01	0	0	0	4
	MP-60	1987	1993	0.04	0.02	-50.00%	0.11	-0.04	0.03	0	2
	MP-A	1987	1995	3.21	0.84	-73.83%	4.63	1.79	1.82	-0.14	2
West-moreland-10	MP12	1988	1995	0.27	0.76	181.48%	0.79	-0.27	1.11	0.41	2
West-moreland-11	MP3	1988	1992	94.65	54.32	-42.61%	110.31	78.98	62.26	46.77	3
West-moreland-12	MP-1	1988	1995	71.8	0	-100.00%	102.04	41.56	0	0	4
	MP-2	1988	1995	0.2	0.14	-30.00%	0.34	0.06	0.28	0	2
	MP-3	1988	1995	4.03	0.78	-80.65%	8.36	-0.3	1.06	5	2
	MP-4	1988	1995	16.32	0.06	-99.63%	24.41	8.23	0.34	-0.23	3
	MP-5	1988	1995	3.67	8.13	121.53%	8.69	-1.35	13.57	2.69	2
	MP-6	1988	1995	7.11	10.03	41.07%	10.57	3.65	22.16	-2.11	2
	MP-A	1988	1995	0.92	0.47	-48.91%	1.84	0	0.76	0.18	2
	MP-B	1988	1995	0.42	0.18	-57.14%	0.75	0.09	0.28	0.07	2
West-moreland-13	mp-a	1989	1993	0.03	0.02	-33.33%	0.03	0.02	0.04	-0.01	2
	mp-b	1989	1993	0.25	0.06	-76.00%	0.32	0.18	0.09	0.01	3
West-moreland-14	HU-1	1988	1995	2.48	3.94	58.87%	3.4	1.56	5.31	2.56	2
	MP-5A	1988	1995	0	0.01	N/A	0.02	-0.02	0.03	-0.02	2
West-moreland-15	SLK-GW-27	1994	1999	0.37	0	-100.00%	0.69	0.04	0	0	4

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
West-moreland-16	mp-8	1990	1995	0.67	0.96	43.28%	0.87	0.46	1.38	0.55	2
West-moreland-17	SW18	1989	1993	0.04	0	-100.00%	0.05	0.03	0	0	4
West-moreland-18	1	1989	1995	0.06	0.06	0.00%	0.08	0	0.09	0.03	2
	2	1989	1995	0.08	0.06	-25.00%	0.11	0.05	0.12	0	2
	3	1989	1995	0.05	0.06	20.00%	0.08	0.01	0.16	0	2
West-moreland-19	MP5	1993	1999	0	0	N/A	0.01	0	0	0	4
West-moreland-20	mp-7	1991	1998	0	0	N/A	0.01	0	0	0	4
West-moreland-21	MP3	1992	1997	0.04	0	-100.00%	0.06	0.02	0.01	0	3
West-moreland-22	mp-13	1994	1998	0.02	0	-100.00%	0.11	-0.07	0	0	4
	mp-16	1994	1998	0.03	0	-100.00%	0.05	0.01	0	0	4
<b>Manganese</b>											
Allegheny-1	10	1986	1995	0.25	0.88	252.00%	0.3	0.18	1.28	0.47	1
	2	1986	1995	0.56	0.12	-78.57%	0.79	0.32	0.18	0.05	3
Allegheny-3	d-1p	1991	1998	0.15	0.07	-53.33%	0.17	0.14	0.1	0.03	3
Allegheny-4	BS12	1991	1995	1.14	0.24	-78.95%	1.32	0.96	0.31	0.16	3
	MD1	1991	1995	0.74	0.52	-29.73%	0.79	0.69	0.65	0.39	3
	MD2	1991	1995	0.07	0	-100.00%	0.12	0.02	0.01	-0.01	3
Allegheny-5	MP-2	1993	1995	0.13	0.02	-84.62%	0.21	0.05	0.03	0.01	3
Armstrong-1	1A	1984	1990	0.51	0.33	-35.29%	0.75	0.26	0.53	0.13	2
Armstrong-6	1	1988	1995	1.09	0.25	-77.06%	1.39	0.8	0.29	0.21	3
Armstrong-10	C-11	1989	1995	0.07	0.01	-85.71%	0.09	0.05	0.01	0	3
	S-20	1989	1995	0.5	0.22	-56.00%	0.68	0.31	0.3	0.14	3
Armstrong-12	mp2	1991	1995	0.23	0.05	-78.26%	0.38	0.07	0.06	0.04	3
	mph	1991	1995	0.09	0.06	-33.33%	0.14	0.05	0.09	0.04	2
Armstrong-13	41	1990	1995	0.37	0	-100.00%	0.46	0.28	0	0	4
	48	1990	1995	0.12	0	-100.00%	0.14	0.1	0	0	4
	Unit 2	1990	1995	6.35	0.31	-95.12%	7.12	5.58	0.44	0.18	3

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Armstrong-14	1	1991	1993	0.91	0	-100.00%	1.51	0.31	0	0	4
Armstrong-15	V2	1992	1997	0.35	0.12	-65.71%	0.45	0.25	0.24	0	3
Beaver-1	S-10	1988	1995	1.93	3.17	64.25%	2.39	1.46	4.02	2.33	2
Butler-1	5W	1986	1991	0.8	1.28	60.00%	1.65	-0.05	1.8	0.72	2
Butler-2	2W	1984	1989	0.01	0	-100.00%	0.02	0	0	0	4
	5AW	1984	1989	0.03	0.51	1600.00%	0.07	0	0.76	0.27	1
	8W	1984	1989	0.04	0.07	75.00%	0.06	0.02	0.1	0.04	2
Butler-3	S-116	1986	1994	3.6	0.42	-88.33%	4.22	2.98	0.95	-0.1	3
	S-13	1986	1994	0.44	0	-100.00%	0.58	0.28	0	0	4
	S-200	1986	1994	0.15	0.04	-73.33%	0.34	-0.04	0.22	-0.43	2
	S-91	1986	1994	0.24	0	-100.00%	0.36	0.12	0	0	4
	S-95/96	1986	1994	0.24	0	-100.00%	0.36	0.12	0.06	-0.06	3
Butler-4	DR2	1991	1998	0.12	0	-100.00%	0.14	0.1	0	0	4
Clarion-1	SP-1	1985	1995	5.78	1.11	-80.80%	6.27	5.29	1.54	0.68	3
	SP-28	1985	1995	3.94	1.14	-71.07%	4.57	3.31	1.46	0.82	3
	SP-5	1985	1995	0.13	0	-100.00%	0.17	0.08	0	0	4
	SP-6	1985	1995	1.22	0	-100.00%	1.55	0.89	0	0	4
Clarion-2	1	1986	1989	0.05	0.693	1286.00%	0.1	0	1.07	0.31	1
Clarion-3	RH-78	1990	1994	0.84	0	-100.00%	0.97	0.71	0	0	4
	RH-79	1990	1994	0.38	0	-100.00%	0.44	0.32	0	0	4
	RH-82	1990	1994	0.55	0	-100.00%	0.66	0.44	0.01	0	3
	RH-84	1990	1994	0.38	0.28	-26.32%	0.46	0.29	0.53	0.04	2
	RH-91	1990	1994	0.48	0	-100.00%	0.52	0.43	0.19	-0.19	3
	RH-93	1990	1994	0.25	0.06	-76.00%	0.3	0.21	0.16	-0.04	3
	RH-94	1990	1994	0.19	0	-100.00%	0.22	0.16	0	0	4
Clarion-4	RH-96	1990	1994	0.61	0	-100.00%	0.94	0.27	0	0	4
	1	1990	1996	0.04	0	-100.00%	0.05	0.03	0	0	4
	2	1990	1996	0.95	0.38	-60.00%	1.09	0.81	0.57	0.18	3
Clarion-5	DR-1	1990	1992	0.33	3.34	912.12%	0.47	0.23	7	-0.32	2
Clearfield-2	W10	1985	1998	3.99	4.15	4.01%	6.16	1.8	7.95	0.35	2
	W42	1985	1998	7.26	10.79	48.62%	11.04	3.47	15.05	6.54	2
	W43	1985	1998	0.94	29.81	3071.28%	1.45	0.43	49.54	10.09	1
	W44	1985	1998	9.54	8.21	-13.94%	14.61	4.46	13.32	3.11	2
Clearfield-3	SF-1	1986	1998	0.05	0.01	-80.00%	0.06	0.03	0.02	0	3
	SF10	1986	1998	0.05	0	-100.00%	0.08	0.01	0	0	4
	SF4	1986	1998	0.02	0.01	-50.00%	0.03	0	0.02	-0.01	2
	SF6	1986	1998	0.04	0.01	-75.00%	0.66	-0.59	0.04	-0.02	2
	SF61	1986	1998	0.11	0.02	-81.82%	0.19	0.02	0.07	-0.03	2
Clearfield-4	tk-18	1985	1997	6.2	8.12	30.97%	8.01	4.39	8.76	7.49	2
	tk-21	1985	1997	1.7	0.19	-88.82%	2.53	0.87	0.51	-0.13	3
	TK-3	1985	1997	6.9	5.77	-16.38%	7.75	6.05	7.43	4.11	2
	tk-37	1985	1997	2.11	1.59	-24.64%	3.54	0.68	2.07	1.11	2
	tk-4	1985	1997	0.31	0.11	-64.52%	0.46	0.16	0.16	0.07	2
	tk-7	1985	1997	0.4	0	-100.00%	0.49	0.31	0	0	4
Clearfield-5	SV-5	1988	1992	0.38	0.46	21.05%	0.43	0.32	0.62	0.37	2
	SV-8	1988	1992	0.98	0.78	-20.41%	1.51	0.45	1.07	0.6	2
Clearfield-6	R-3	1988	1995	0.47	0.02	-95.74%	0.64	0.28	0.07	-0.03	3
	R-5	1988	1995	0.42	0.31	-26.19%	0.62	0.21	0.51	0.11	2
	R-8	1988	1995	2.23	1.48	-33.63%	2.77	1.68	1.87	1.09	2

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Clearfield-7	12	1989	1997	0.02	0.07	250.00%	0.03	0	0.12	0.02	2
	13	1989	1997	1.42	2.2	54.93%	1.84	1.01	2.56	1.84	2
Clearfield-8	TK4	1990	1996	0.21	0.11	-47.62%	0.3	0.12	0.16	0.06	2
	TK7	1990	1996	0.2	0	-100.00%	0.27	0.13	0	0	4
Clearfield-9	1	1990	1994	0.02	0	-100.00%	0.05	0.01	0	0	4
	2	1990	1994	0	0	N/A	0.01	0	0	0	4
Clearfield-10	HU 1	1992	1998	0.15	0.21	40.00%	0.3	0.01	0.34	0.07	2
	HU 2	1992	1998	0.14	0.01	-92.86%	0.2	0.08	0.01	0	3
	HU 3	1992	1998	0.4	0.18	-55.00%	0.56	0.23	0.26	0.1	2
Clinton-2	GR-9	1988	1993	0.1	0.34	240.00%	0.2	-0.02	-1.97	2.65	1
Clinton-3	SEH-31	1990	1993	3.43	1.9	-44.61%	4.45	2.41	3.3	0.5	2
	SHE-30	1990	1993	0.14	1.29	821.43%	0.27	0.01	1.9	0.67	1
Fayette-1	mp-4	1989	1993	0.27	0.15	-44.44%	0.43	0.1	0.16	0.14	2
	mp-5	1989	1993	0.15	0	-100.00%	0.2	0.1	0	0	4
	mp-6	1989	1993	0.03	0	-100.00%	0.05	0	0	0	4
	mp-8	1989	1993	0.2	0.05	-75.00%	0.3	0.08	0.05	0.05	3
Fayette-2	HU-1	1984	1992	3.4	2.82	-17.06%	4.48	2.3	3.2	2.43	2
Fayette-4	MP6	1988	1993	0.05	0.08	60.00%	0.09	0	0.29	-0.13	2
Fayette-6	MP-1	1988	1994	2.13	0.84	-60.56%	2.75	1.5	2.29	-0.61	2
Fayette-7	MP48	1989	1996	3.34	2.88	-13.77%	4.37	2.32	4.02	1.74	2
	MP49	1989	1996	0.97	1.26	29.90%	1.34	0.59	1.7	0.83	2
Fayette-8	MP-15	1988	1994	1.25	0.7	-44.00%	1.52	0.98	2.38	-0.99	2
Fayette-10	mp-1	1989	1992	1.11	0.62	-44.14%	1.35	0.87	1.13	0.11	2
	mp-11	1989	1992	0.93	0.43	-53.76%	1.22	0.64	0.82	0.04	2
	mp-2	1989	1992	0.08	0.16	100.00%	0.1	0.05	0.26	0.05	2
Fayette-11	mp 29	1991	1998	0.06	0.67	1016.67%	0.2	-0.08	1.04	0.3	1
Fayette-12	Mp68	1991	1997	0.04	0.05	25.00%	0.07	0.01	0.1	0.01	2
Fayette-13	D5	1991	1995	1.91	1.79	-6.28%	2.68	1.14	2.3	1.28	2
Fayette-14	mp-19	1991	1998	0.04	0	-100.00%	0.08	0.01	0	0	4
	mp-57	1991	1998	0.41	0.32	-21.95%	0.8	0.03	0.77	-0.14	2
	mp-60	1991	1998	1.13	1.06	-6.19%	1.64	0.62	1.65	0.48	2
	mp56	1991	1998	1.01	5.64	458.42%	2.14	-0.13	9.37	1.91	2
Fayette-15	MD1/MD2	1991	1995	0.09	0	-100.00%	0.2	-0.02	0.01	-0.01	2
	MD8/BS29	1991	1995	0.18	0.43	138.89%	0.47	-0.12	0.54	0.32	2
Fayette-16	MP-42	1994	1996	0.03	0.01	-66.67%	0.08	-0.02	0.05	-0.02	2
	MP-8	1994	1996	0.24	0.13	-45.83%	0.33	0.14	0.19	0.06	2
Greene-1	MP-51	1987	1988	1.75	0	-100.00%	3.3	0.19	0	0	4
Greene-2	hu1	1989	1994	18.65	3.31	-82.25%	26.91	10.39	3.9	2.72	3
Indiana-3	1 (A)	1992	1998	0.23	0	-100.00%	0.44	0.02	0	0	4
	2 (B)	1992	1998	30.87	6.04	-80.43%	37.76	23.98	7.07	5	3
	3 (C)	1992	1996	17.87	15.8	-11.58%	20.29	15.46	24.83	6.77	2
Jefferson-1	1	1984	1993	0.1	3.87	3770.00%	0.21	-0.01	8.19	-0.44	2
Jefferson-2	MP-13	1986	1996	0.1	6.36	6260.00%	0.13	0.07	11.22	1.5	1
Jefferson-4	HU-1	1989	1996	1.18	0.64	-45.76%	1.49	0.87	0.88	0.39	2
Jefferson-5	MP-33	1989	1998	0.32	0	-100.00%	0.51	0.14	0	0	4
	MP-8B	1989	1998	0.18	0.14	-22.22%	0.22	0.14	0.21	0.07	2
Jefferson-6	S-25	1993	1998	0.08	2.05	2462.50%	0.11	0.06	3.38	0.72	1
	s-34	1993	1998	0.18	0.15	-16.67%	0.29	0.11	0.45	-0.15	2
Jefferson-7	MP-1	1991	1995	0.3	0	-100.00%	0.4	0.2	0	0	4
Venango-1	1	1989	1994	0.71	0.94	32.39%	1.05	0.48	2.17	-0.28	2

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Wash. -2	A	1985	1998	3.58	0.31	-91.34%	5.09	2.07	0.45	0.17	3
Wash. -4	MP-1	1989	1998	9.49	1.91	-79.87%	18.63	2.34	2.58	1.23	2
	MP-2	1989	1998	6.59	0	-100.00%	8.37	4.82	0	0	4
Wash. -5	d-1	1987	1996	0.15	0.03	-80.00%	0.17	0.14	0.11	-0.05	3
Wash. -6	D5	1992	1997	1.53	2.46	60.78%	2.17	0.89	2.59	2.34	1
Wash. -7	se1a	1995	1998	0.11	0	-100.00%	0.27	-0.04	0	0	4
West-moreland-1	MP10	1984	1993	1.05	1.09	3.81%	1.35	0.74	1.75	0.42	2
	MP7	1984	1993	0.63	1.37	117.46%	0.86	0.4	1.95	0.78	2
	MP9	1984	1993	0.02	0.04	100.00%	0.04	0.01	0.07	-0.01	2
West-moreland-2	S8	1985	1994	1.32	0.57	-56.82%	1.76	0.87	1.1	0.03	2
West-moreland-3	CP2	1986	1990	0.05	0.18	260.00%	0.05	0.04	0.28	0.07	1
	Culvert	1986	1986	0.05	0.09	80.00%	0.09	0.01	0.14	0.03	2
West-moreland-7	MP-3	1986	1991	0.34	0.04	-88.24%	0.44	0.22	0.05	0.03	3
	MP-4	1986	1991	6.9	12.1	75.36%	13.63	0.16	15.19	9.01	2
West-moreland-8	MP-4	1987	1998	0.07	0	-100.00%	0.09	0.03	0	0	4
West-moreland-9	MP-46	1987	1993	9.78	7.4	-24.34%	12.05	7.5	9.59	5.22	2
	MP-47	1987	1993	8.03	10.29	28.14%	11.74	4.3	19.25	1.33	2
	MP-51	1987	1993	0.24	0.27	12.50%	0.33	0.13	0.42	0.11	2
	MP-52	1987	1993	0.14	0.14	0.00%	0.18	0.09	0.34	-0.07	2
	MP-56	1987	1993	0.33	0.32	-3.03%	0.55	0.1	0.59	0.04	2
	MP-60	1987	1993	0.31	0.15	-51.61%	0.43	0.18	0.26	0.04	2
	MP-A	1987	1995	0.98	0.45	-54.08%	1.28	0.67	0.63	0.27	3
West-moreland-10	MP12	1988	1995	1.88	5.54	194.68%	4.4	-0.66	7.29	3.79	2
West-moreland-12	MP-1	1988	1995	4.58	0	-100.00%	6.56	2.6	0	0	4
	MP-2	1988	1995	0.19	0.9	373.68%	0.29	0.09	1.66	0.14	2
	MP-3	1988	1995	0.7	4.36	522.86%	1.08	0.32	6.26	2.47	1
	MP-4	1988	1995	1	0.02	-98.00%	1.56	0.44	0.14	-0.11	3
	MP-5	1988	1995	0.62	1.59	156.45%	1.23	0	2.48	0.7	2
	MP-6	1988	1995	1.01	1.65	63.37%	1.45	0.57	3.34	-0.03	2
	MP-A	1988	1995	1.42	1.38	-2.82%	2.21	0.63	2.17	0.6	2
	MP-B	1988	1995	0.88	0.48	-45.45%	1.32	0.44	0.65	0.31	2
	MP-C	1988	1995	0.17	0.32	88.24%	0.42	-0.08	0.41	0.23	2
	MP-D	1988	1995	0.15	0.04	-73.33%	0.24	0.06	0.07	0	2
West-moreland-13	mp-a	1989	1993	0.07	0.06	-14.29%	0.09	0.06	0.1	0	2
	mp-b	1989	1993	0.59	0.23	-61.02%	0.69	0.48	0.29	0.15	3
West-moreland-14	HU-1	1988	1995	0.77	2.64	242.86%	0.91	0.64	3.64	1.64	1
	MP-5A	1988	1995	0	0.02	N/A	0.02	-0.02	0.03	0	2
West-moreland-15	SLK-GW-27	1994	1999	0.02	0.01	-50.00%	0.03	0	0.03	0	2

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
West-moreland-16	mp-8	1990	1995	0.3	3.3	1000.00%	0.37	0.24	5.12	1.47	1
West-moreland-18	1	1989	1995	0.34	0.36	5.88%	0.39	0.3	0.44	0.28	2
	2	1989	1995	0.19	0.09	-52.63%	0.26	0.12	0.27	-0.09	2
	3	1989	1995	0.17	0.11	-35.29%	0.24	0.11	0.28	0	2
West-moreland-19	MP16	1993	1999	0.08	0.03	-62.50%	0.09	0.06	0.04	0.02	3
	MP5	1993	1999	0.1	0	-100.00%	0.14	0.07	0	0	4
	MP6	1993	1999	0.08	0.11	37.50%	0.09	0.06	0.18	0.03	2
West-moreland-22	103	1994	1998	0.11	0	-100.00%	0.14	0.08	0	0	4
	69	1994	1998	0.42	0	-100.00%	0.75	0.09	0	0	4
	mp-13	1994	1998	0.03	0	-100.00%	0.24	-0.18	0	0	4
	mp-16	1994	1998	0.04	0	-100.00%	0.06	0.01	0	0	4
<b>Sulfate</b>											
Allegheny-1	10	1986	1995	16.35	44.62	172.91%	52.47	-19.78	160.3	-71.05	2
	2	1986	1995	72.12	10.59	-85.32%	122.38	21.86	15.02	6.16	3
Allegheny-2	S-6	1989	1998	22.72	307.44	1253.17%	34.39	11.04	418.26	196.63	1
	S-7	1989	1989	1244.61	266.69	-78.57%	1521.2	968.02	305.96	227.43	3
Allegheny-3	d-1p	1991	1998	19.4	7.93	-59.12%	27.14	11.66	11.89	3.97	2
Allegheny-4	BS12	1991	1995	343.77	88.47	-74.26%	804.78	-117.24	182.02	-5.08	2
	MD1	1991	1995	202.67	88.88	-56.15%	261.68	143.66	150.33	27.42	2
	MD2	1991	1995	70.92	0	-100.00%	114.68	27.16	4.16	-4.16	3
Allegheny-5	MP-2	1993	1995	16.93	16.31	-3.66%	34.81	-0.95	20.65	11.97	2
Armstrong-1	1A	1984	1990	41.83	34.29	-18.03%	67.92	15.74	55.96	12.62	2
Armstrong-2	D-1	1986	1995	2.42	69.01	2751.65%	13.02	-8.18	136.72	1.31	2
	D-112	1986	1995	3.26	20.56	530.67%	4.63	1.9	67.13	-26	2
	D-4	1986	1995	43.27	30.44	-29.65%	69.89	16.66	56.41	4.48	2
Armstrong-3	w-1A	1986	1992	28.48	80.23	181.71%	35.42	21.54	120.57	39.9	1
	w-2A	1986	1992	13.63	59.2	334.34%	18.41	8.85	102.51	15.88	2
	w-3A	1986	1992	3.7	105.18	2742.70%	4.8	2.6	126.41	83.94	1
Armstrong-4	GK-13	1987	1993	8.33	2.58	-69.03%	12.01	4.65	5.38	-0.21	2
	GK-17	1987	1988	0.03	0	-100.00%	0.17	-0.11	0	0	4
Armstrong-5	MP-2	1988	1993	48.95	3.41	-93.03%	70.64	27.26	8.17	-1.35	3
Armstrong-6	1	1988	1995	137.56	20.75	-84.92%	177.66	97.45	35.76	5.76	3
Armstrong-7	MP14	1988	1997	0.46	3.74	713.04%	0.67	0.24	4.63	2.84	1
	MP15	1988	1997	10.08	46.41	360.42%	16.47	3.69	65.85	26.97	1
	MP17	1988	1997	1.1	25.92	2256.36%	1.28	0.91	43.87	7.97	1
	MP21	1988	1997	0.07	0.32	357.14%	0.12	0.02	0.93	-0.29	2
	MP22	1988	1997	0.11	2.53	2200.00%	0.16	0.06	5.52	-0.46	2
	MP23	1988	1997	0.45	16.95	3666.67%	4.76	-3.86	25.22	8.68	1
MP24	1988	1997	1.06	1.11	4.72%	2.86	-0.74	1.65	0.58	2	

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Armstrong-8	c3-a	1988	1998	21.04	59.9	184.70%	60.05	-17.98	84.17	35.62	2
	md-2	1988	1998	4.62	97.77	2016.23%	10.15	-0.92	137.71	57.83	1
Armstrong-9	HU1	1988	1998	195.5	239.86	22.69%	322.4	68.61	324.3	155.42	2
Armstrong-10	C-11	1989	1995	3.98	5.22	31.16%	4.8	3.15	10.36	-0.12	2
	S-20	1989	1995	56.82	90.44	59.17%	68.1	45.55	112.59	68.28	1
Armstrong-11	HU1	1990	1997	1.17	0	-100.00%	2.69	-0.36	0	0	4
Armstrong-12	mp2	1991	1995	45.44	6.63	-85.41%	83.26	7.63	7.93	5.33	2
	mph	1991	1995	4.96	6.55	32.06%	9.08	0.84	8.45	4.64	2
Armstrong-13	41	1990	1995	17.8	0	-100.00%	21.79	13.81	0.01	-0.01	3
	48	1990	1995	9.33	0	-100.00%	12.51	6.14	0.05	-0.05	3
	Unit 2	1990	1995	312.42	4.94	-98.42%	345.91	278.92	7.17	2.7	3
Armstrong-14	1	1991	1993	27.75	0	-100.00%	35.42	20.08	0	0	4
Armstrong-16	HU1	1993	1998	2.35	7.14	203.83%	3.9	0.8	9.26	5.02	1
Armstrong-17	HU1	1994	1998	0.51	0.54	5.88%	0.95	0.07	0.89	0.19	2
Armstrong-18	D1	1994	1998	1.7	0	-100.00%	2.62	0.77	0	0	4
Beaver-1	S-10	1988	1995	174.39	23.48	-86.54%	211.44	137.35	34.01	12.94	3
Butler-1	5W	1986	1991	162.27	281.84	73.69%	233.31	91.23	427.5	136.19	2
Butler-2	2W	1984	1989	1.88	0	-100.00%	2.33	1.42	0	0	4
	5AW	1984	1989	4.49	116.99	2505.57%	5.96	3.02	169.27	64.7	1
	8W	1984	1989	11.36	40.41	255.72%	18.9	3.82	63.6	17.21	2
Butler-3	S-116	86	1994	117.45	37	-68.50%	144.07	90.82	66.27	7.73	3
	S-13	86	1994	29.13	0	-100.00%	34.81	23.45	0	0	4
	S-200	86	1994	9	37.12	312.44%	18.55	-0.55	84.46	-10.21	2
	S-91	86	1994	7.47	0	-100.00%	9.82	5.12	0	0	4
	S-95/96	86	1994	12.56	5.26	-58.12%	17.7	7.42	11.51	-1	2
Butler-4	DR2	1991	1998	32.65	0	-100.00%	37.19	28.11	0	0	4
Butler-5	1	1991	1998	162.91	264.13	62.13%	200.48	125.35	367.06	161.21	2
Cambria-1	MP 9	1990	1995	18.08	0	-100.00%	25.98	10.17	0	0	4
	Mp 13	1990	1995	35.65	0	-100.00%	50.56	20.74	0	0	4
Clarion-1	SP-1	1985	1995	540.9	111.79	-79.33%	633.8	448	172.58	51	3
	SP-28	1985	1995	219.97	142.8	-35.08%	276.11	163.82	190.45	95.14	2
	SP-5	1985	1995	8.16	0	-100.00%	12.28	4.03	0.3	-0.3	3
	SP-6	1985	1995	74.84	0	-100.00%	134.82	14.85	0	0	4
Clarion-2	1	1986	1989	2.77	0	-100.00%	4.87	0.68	0.31	-0.31	3
Clarion-3	RH-78	1990	1994	0.54	0	-100.00%	0.92	0.15	0	0	4
Clarion-4	1	1990	1996	0	0	N/A	2.27	-2.27	0	0	4
	2	1990	1996	31.35	40.06	27.78%	48.78	13.92	46.12	34	2
Clarion-5	DR-1	1990	1992	19.88	306.33	1440.90%	34.02	5.75	427.54	185.13	1
Clarion-6	1	1992	1998	1.15	0	-100.00%	2.27	0.04	0	0	4
	2	1992	1998	1.95	0	-100.00%	3.03	0.86	0	0	4
	3	1992	1998	8.8	0	-100.00%	12.73	4.87	0	0	4
Clearfield-1	unit 1	1985	1998	318.53	113.2	-64.46%	387.19	249.87	173.83	52.56	3
Clearfield-2	W10	1985	1998	63.04	22.66	-64.05%	114.45	11.63	31.77	13.56	2
	W42	1985	1998	143.29	51.1	-64.34%	226.07	60.52	74.32	27.87	2

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	W43	1985	1998	293.17	208.7	-28.81%	484.05	102.29	288.67	127.46	2
	W44	1985	1998	95.95	56.08	-41.55%	194.56	-2.66	79.96	32.2	2
Clearfield-3	SF-1	1986	1998	3.11	0.98	-68.49%	3.86	2.36	1.78	0.18	3
	SF10	1986	1998	0	0.09	N/A	1.23	-1.23	0.14	0.04	2
	SF4	1986	1998	4.11	0.64	-84.43%	5.94	2.28	1.87	-0.58	3
	SF6	1986	1998	0.31	44.64	14300.00%	5.53	-4.91	67.84	21.43	1
	SF61	1986	1998	16.74	5.79	-65.41%	26.47	7.01	23.25	-11.67	2
Clearfield-4	TK-3	1985	1997	179.92	159.05	-11.60%	206.99	152.86	203.61	114.49	2
	tk-18	1985	1997	125.04	240.43	92.28%	174.87	75.2	305.94	174.92	1
	tk-21	1985	1997	58.65	6.49	-88.93%	86.47	30.83	25.78	-12.81	3
	tk-37	1985	1997	90.44	30.31	-66.49%	113.97	66.91	45.8	14.82	3
	tk-4	1985	1997	7.93	1.52	-80.83%	10.8	5.05	2.13	0.92	3
	tk-7	1985	1997	18.15	0	-100.00%	21.79	14.51	0	0	4
Clearfield-5	SV-5	1988	1992	13.9	19.82	42.59%	15.88	11.91	27.06	12.58	2
	SV-8	1988	1992	29.68	35.54	19.74%	43.09	16.26	69.97	1.11	2
Clearfield-6	R-3	1988	1995	19.28	0.53	-97.25%	26.03	12.53	4.51	-3.46	3
	R-5	1988	1995	15.84	8.43	-46.78%	20.95	10.73	14.08	2.78	2
	R-8	1988	1995	143.19	136.72	-4.52%	163.3	123.07	179.82	93.61	2
Clearfield-7	12	1989	1997	1.93	3.85	99.48%	3.35	0.5	6.71	1	2
	13	1989	1997	290.52	310.11	6.74%	380.4	200.64	393.72	226.51	2
Clearfield-8	TK4	1990	1996	8.83	1.6	-81.88%	11.63	6.04	2.42	0.79	3
	TK7	1990	1996	11.51	0	-100.00%	20.58	2.45	0	0	4
Clearfield-9	1	1990	1994	26.83	0	-100.00%	47.73	5.94	0	0	4
	2	1990	1994	0.33	0	-100.00%	1.34	-0.67	0	0	4
Clearfield-1	HU 1	1992	1998	21.08	19.4	-7.97%	27.11	15.04	29.44	9.37	2
	HU 2	1992	1998	4.4	4.64	5.45%	6.23	2.57	5.82	3.46	2
	HU 3	1992	1998	27.93	16.65	-40.39%	35.69	20.18	24.77	8.52	2
Clearfield-1	subf-a	1993	1994	14.09	17.12	21.50%	20.65	7.53	21.97	12.27	2
	subf-b	1993	1994	8.22	2.72	-66.91%	11.76	4.68	5.72	-0.29	2
	subf-c	1993	1994	26.61	8.31	-68.77%	32.29	20.93	15.04	1.58	3
Clinton-1	13	1981	1995	60.58	0	-100.00%	108.73	12.43	0	0	4
	15A	1981	1995	6.61	0	-100.00%	18.51	-5.29	0	0	4
	96	1981	1995	8.65	0	-100.00%	17.39	-0.08	0	0	4
	97	1981	1995	9.59	0	-100.00%	20.74	-1.55	0	0	4
	SNW 1A	1981	1996	344.25	225.93	-34.37%	502.02	186.49	255.83	196.03	2
Clinton-2	GR-9	1988	1993	45.73	20.26	-55.70%	72.46	19.01	102.41	-61.89	2
Clinton-3	SEH-31	1990	1993	68.76	52.82	-23.18%	115.31	22.22	81.62	24.02	2
	SHE-30	1990	1993	14.52	32.98	127.13%	23.92	5.12	47.26	18.69	2
Fayette-1	mp-4	1989	1993	34.26	10.4	-69.64%	41.9	26.61	10.69	10.11	3
	mp-5	1989	1993	30.65	0	-100.00%	35.98	25.32	0	0	4
	mp-6	1989	1993	5.47	0	-100.00%	10.99	-0.05	0	0	4
	mp-8	1989	1993	36.78	1.14	-96.90%	40.65	32.91	1.15	1.12	3
Fayette-2	HU-1	1984	1992	955.89	448.05	-53.13%	1207.33	704.45	530.84	365.25	3
Fayette-3	MS100	1988	1995	158.66	0.35	-99.78%	190.73	126.59	2.31	-1.61	3
Fayette-4	MP6	1988	1993	6.73	3.22	-52.15%	12.23	1.23	5.53	0.91	2
Fayette-5	mp-4	1988	1998	2297.02	708.19	-69.17%	3795.72	798.32	959.29	457.08	2
	mp-hua	1988	1998	1119.78	539.57	-51.81%	1531.05	708.51	820.34	258.8	2
Fayette-6	MP-1	1988	1994	151.45	223.12	47.32%	224.93	77.98	850.22	-403.98	2
Fayette-7	MP48	1989	1996	735.46	1286.57	74.93%	1143.47	328.44	1605.91	967.24	2
	MP49	1989	1996	108.52	286.36	163.88%	165.54	51.5	413.41	159.31	2
Fayette-8	MP-15	1988	1994	217.8	367.84	68.89%	322.73	112.88	693.39	42.29	2

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Fayette-9	MP-28	1990	1998	245.8	473.19	92.51%	400.45	91.16	640.08	306.3	2
Fayette-10	mp-1	1989	1992	285.84	55.97	-80.42%	330.13	241.56	89.13	22.8	3
	mp-11	1989	1992	84.96	18.15	-78.64%	116.43	53.49	49.56	-13.25	3
	mp-2	1989	1992	14.41	15.07	4.58%	18.96	9.87	22.1	8.05	2
Fayette-11	mp 29	1991	1998	33.76	65.81	94.93%	87.9	-20.38	88.03	43.6	2
Fayette-12	Mp68	1991	1997	10.39	4.76	-54.19%	18.34	2.44	7.88	1.64	2
Fayette-13	D5	1991	1995	30.29	42.96	41.83%	44.7	15.88	49.26	36.67	2
Fayette-14	mp-19	1991	1998	0	0	N/A	2.65	-2.65	0	0	4
	mp-57	1991	1998	12.93	26.87	107.81%	25.11	0.76	58.1	-4.37	2
	mp-60	1991	1998	44.43	58.07	30.70%	94	-5.14	132.99	-16.86	2
	mp56	1991	1998	61.09	382.1	525.47%	132.49	-10.32	886	-121.8	2
Fayette-15	MD1/MD2	1991	1995	9.73	0	-100.00%	42.8	-23.34	0	0	4
	MD8/BS29	1991	1995	8.46	11.81	39.60%	16.88	0.05	14.16	9.46	2
Fayette-16	MP-42	1994	1996	8.39	2.81	-66.51%	13.97	2.81	8.57	-2.95	2
	MP-8	1994	1996	280.52	307.8	9.72%	383.92	177.11	366.2	249.4	2
Greene-1	MP-51	1987	1988	1.86	0	-100.00%	1.86	1.86	0	0	4
Greene-2	hu1	1989	1994	1454.81	101.56	-93.02%	2238.44	671.19	171.51	31.61	3
Indiana-1	H	1988	1995	256.37	335.11	30.71%	345.93	166.81	441.72	228.5	2
	J	1988	1995	152	150.81	-0.78%	218.05	85.94	309.17	-7.55	2
	K	1988	1995	42.49	65.77	54.79%	48.17	36.17	99.71	31.83	2
	L	1988	1995	57.1	2.34	-95.90%	78.35	35.86	30.89	-26.22	3
	M	1988	1995	23.31	63.05	170.48%	38.3	8.32	120.47	5.67	2
	N	1988	1995	6.28	1.47	-76.59%	11.89	0.66	2.56	0.37	2
	O	1988	1995	0	0	N/A	0.08	-0.08	0	0	4
Indiana-2	MP 15	1988	1997	32.32	6.64	-79.46%	41.22	23.42	8.17	5.11	3
	MP 5	1988	1997	280.64	415.5	48.05%	501.73	59.56	694.68	136.33	2
Indiana-3	1 (A)	1992	1998	0	0	N/A	6.71	-6.71	0.79	-0.79	2
	2 (B)	1992	1998	1359.89	182.71	-86.56%	2016.81	702.97	299.61	65.82	3
	3 (C)	1992	1996	901.6	840.32	-6.80%	1388	415.2	1019.61	661.02	2
	4 (D)	1992	1998	279.41	63.79	-77.17%	432.03	126.78	87.33	40.26	3
Indiana-4	1	1992	1998	34.96	30.09	-13.93%	40.73	29.19	39.26	20.92	2
	MP 51	1992	1998	30.82	0	-100.00%	38.16	23.48	0	0	4
	MP 52	1992	1998	19.63	8.13	-58.58%	32.18	7.09	10.67	5.59	2
Jefferson-2	MP-13	1986	1996	7.32	117.06	1499.18%	10.16	4.48	263.62	-29.5	2
Jefferson-3	HU-1	1989	1992	1.37	0	-100.00%	3.36	-0.61	0	0	4
	HU-2	1989	1992	11.41	1.57	-86.24%	48.26	-25.43	2.35	0.78	2
Jefferson-5	MP-33	1989	1998	207	42.74	-79.35%	226.98	187.02	87.47	-1.98	3
	MP-8B	1989	1998	160.44	138.56	-13.64%	206.68	114.2	210.39	66.73	2
Jefferson-6	S-25	1993	1998	2.2	44.92	1941.82%	5.78	-1.37	87.85	1.99	2
	s-34	1993	1998	11.3	0	-100.00%	17.07	5.53	7.84	-7.84	2
Jefferson-7	MP-1	1991	1995	11.88	0.95	-92.00%	15.31	8.46	3.4	-1.5	3
Lawrence-1	1	1992	1998	10.94	0	-100.00%	14.02	7.85	0	0	4
Somerset-1	SP 16	1989	1998	0.91	7.48	721.98%	1.47	0.34	15.11	-0.15	2
Somerset-2	1	1993	1998	96.17	141.8	47.45%	132.01	60.33	165.67	117.93	2
Venango-1	1	1989	1994	53.53	46.16	-13.77%	70.53	36.53	133.65	-41.34	2
Washington-1	HU1	1986	1993	593.85	2519.02	324.18%	759.01	428.69	3237.63	1800.42	1
Washington-2	A	1985	1998	167.85	84.59	-49.60%	198.99	136.71	125.67	43.52	3
Washington-3	CV103	1985	1998	8369.96	3305.5	-60.51%	9446.53	7293.39	3305.5	3305.5	3
	CV4	1985	1998	1107.28	1189.98	7.47%	1680.24	534.32	1357.27	1022.69	2

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
Washington-4	MP-1	1989	1998	1891.27	297.08	-84.29%	2361.95	1420.6	424.19	169.97	3
	MP-2	1989	1998	2602.83	0	-100.00%	2998.6	2207.1	0	0	4
Washington-5	d-1	1987	1996	14.86	10.31	-30.62%	24.26	5.46	13.71	6.92	2
Washington-6	D5	1992	1997	584.17	601	2.88%	707.38	460.96	762.56	439.44	2
Washington-7	se1a	1995	1998	2.49	0	-100.00%	4.23	0.76	0	0	4
Westmoreland-1	MP10	1984	1993	101.17	77.16	-23.73%	187.84	14.5	102.55	51.77	2
	MP7	1984	1993	47.7	181.95	281.45%	125.51	-30.1	233.17	130.73	1
Westmoreland-1	MP9	1984	1993	0	7.97	N/A	0.82	-0.82	12.26	3.68	1
Westmoreland-2	S8	1985	1994	192.77	85.18	-55.81%	265.22	120.31	187.77	-17.41	2
Westmoreland-3	CP2	1986	1990	12.62	8.54	-32.33%	18.84	6.4	11.66	5.42	2
	Culvert	1986	1986	5.86	6.49	10.75%	6.32	5.4	9.94	3.04	2
Westmoreland-4	MD-1	1986	1990	76.03	41.83	-44.98%	333.63	-181.58	59.17	24.49	2
	MD-3	1986	1990	15.84	0	-100.00%	122.67	-90.99	0	0	4
	MD-4	1986	1990	32.78	21.46	-34.53%	65.64	-0.08	30.87	12.04	2
	MD-6	1986	1990	493.48	0	-100.00%	935.48	51.48	0	0	4
	MD-7	1986	1990	328.92	59.5	-81.91%	563.98	93.85	93.37	25.63	3
Westmoreland-5	HU-1	1986	1996	1117.86	641.62	-42.60%	1601.29	634.43	900.54	382.7	2
Westmoreland-6	M	1985	1993	62.34	121.18	94.39%	157.63	-32.95	143.16	99.2	2
	N	1985	1993	5.96	2.96	-50.34%	14.6	-2.67	11.07	-5.15	2
Westmoreland-7	MP-3	1986	1991	24.53	2.34	-90.46%	33.54	15.53	3.76	0.93	3
	MP-4	1986	1991	482.45	1238.06	156.62%	728.08	236.82	1718.41	757.71	1
Westmoreland-8	MP-4	1987	1998	4.65	0	-100.00%	8.17	1.14	0	0	4
Westmoreland-9	MP-46	1987	1993	917.57	688.07	-25.01%	1135.08	700.05	808.37	567.76	2
	MP-47	1987	1993	972.18	2728.85	180.69%	1342.1	602.25	3508.84	1948.87	1
	MP-51	1987	1993	18.78	5.77	-69.28%	21.13	16.44	10.28	1.27	3
	MP-52	1987	1993	8.02	19.59	144.26%	10.34	5.7	31.64	7.55	2
	MP-56	1987	1993	36.3	49.58	36.58%	50.69	21.92	105.57	-6.41	2
	MP-60	1987	1993	48.43	24.66	-49.08%	58.37	38.49	44.69	4.63	2
	MP-A	1987	1995	89.82	20.15	-77.57%	111.52	68.12	25.7	14.61	3
Westmoreland-10	MP12	1988	1995	96.47	128.95	33.67%	214.68	-21.74	157.23	100.67	2
Westmoreland-11	MP3	1988	1992	3386.86	3201.9	-5.46%	4387.86	2385.85	3961.25	2442.54	2
Westmoreland-12	MP-1	1988	1995	78.61	0	-100.00%	210.22	-53	0	0	4
	MP-2	1988	1995	7.73	68.42	785.12%	10.57	4.89	107.27	29.58	1
	MP-3	1988	1995	36.09	126.28	249.90%	56.99	15.19	162.88	89.68	1
	MP-4	1988	1995	77.27	17.73	-77.05%	137.74	16.8	29.58	5.89	2
	MP-5	1988	1995	15.63	90.44	478.63%	67.65	-36.39	127.46	53.42	2
	MP-6	1988	1995	60.51	130.71	116.01%	102.61	18.4	173.81	87.6	2
	MP-A	1988	1995	0.06	19.42	32266.67%	22.35	-22.23	43.08	-4.23	2
	MP-B	1988	1995	0	19.7	N/A	9.53	-9.53	35.23	4.17	2
MP-C	1988	1995	1.83	18.49	910.38%	5.56	-1.9	31.35	5.64	1	

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	MP-D	1988	1995	0	0.7	N/A	0.31	-0.31	1.41	-0.01	2
Westmoreland-13	mp-a	1989	1993	14.9	10.06	-32.48%	18.78	11.03	25.39	-5.27	2
	mp-b	1989	1993	105.94	7.77	-92.67%	135.65	76.24	24.56	-9.03	3
Westmoreland-14	HU-1	1988	1995	145.68	142.81	-1.97%	189.91	101.44	171.31	114.3	2
	MP-5A	1988	1995	21.31	2.74	-87.14%	27.82	14.81	4.44	1.03	3
Westmoreland-15	SLK-GW-2	1994	1999	15.89	2.45	-84.58%	19.66	12.12	4.26	0.63	3
Westmoreland-16	7										
Westmoreland-17	mp-8	1990	1995	25.18	62.75	149.21%	33.46	16.89	79.47	46.02	1
Westmoreland-18	SW18	1989	1993	3.89	0	-100.00%	4.28	3.51	0	0	4
Westmoreland-18	1	1989	1995	8.78	4.9	-44.19%	12.99	4.57	6.7	3.1	2
	2	1989	1995	10.96	19.28	75.91%	14.7	7.23	34.18	4.38	2
	3	1989	1995	20.59	8.14	-60.47%	39.32	1.87	12.98	3.3	2
Westmoreland-19	MP16	1993	1999	5.81	3.82	-34.25%	6.52	5.1	5.35	2.29	2
	MP5	1993	1999	5.74	0.44	-92.33%	7.38	4.09	1.55	-0.67	3
	MP6	1993	1999	7.04	0	-100.00%	11.33	2.75	2.65	-2.65	3
Westmoreland-20	mp-7	1991	1998	4.09	14.03	243.03%	5.52	2.65	24	4.06	2
Westmoreland-21	MP3	1992	1997	0.3	4.7	1466.67%	0.46	0.14	6.77	2.63	1
Westmoreland-22	103	1994	1998	14.86	0	-100.00%	20.61	9.1	0	0	4
	69	1994	1998	77.99	0	-100.00%	110.87	45.11	0.39	-0.39	3
	mp-13	1994	1998	6.63	0	-100.00%	33.83	-20.57	0	0	4
	mp-16	1994	1998	3.88	0	-100.00%	7.13	0.64	0	0	4
<b>Flow</b>											
Allegheny-1	10	1986	1995	8	4.5	-43.75%	15.74	0.26	13.04	-4.04	2
	2	1986	1995	10	0.5	-95.00%	16.33	3.67	0.67	0.33	3
Allegheny-2	S-6	1989	1998	2.4	29.7	1137.50%	3.77	1.03	41.26	18.14	1
	S-7	1989	1989	136	29	-78.68%	158.12	113.88	34.38	23.62	3
Allegheny-3	d-1p	1991	1998	2.4	1.2	-50.00%	2.56	2.24	1.6	0.8	3
Allegheny-4	BS12	1991	1995	52.98	15	-71.69%	94.38	11.58	30.31	-0.31	2
	MD1	1991	1995	28.65	14	-51.13%	33.24	24.06	23.77	4.23	3
	MD2	1991	1995	11	0	-100.00%	20.51	1.49	0.87	-0.87	3
Allegheny-5	MP-2	1993	1995	2.5	2.2	-12.00%	4.67	0.33	2.58	1.82	2
Armstrong-1	1A	1984	1990	66	50.13	-24.05%	93.93	38.07	78.47	21.78	2
Armstrong-2	D-1	1986	1995	18	22.38	24.33%	32.04	3.96	45.23	-0.47	2
	D-112	1986	1995	2	14.98	649.00%	2.93	1.07	52.54	-22.58	2
	D-4	1986	1995	25	20.47	-18.12%	38.84	11.16	42.88	-1.94	2
Armstrong-3	w-1A	1986	1992	18.06	13.05	-27.74%	21.75	14.37	17.61	9.39	2
	w-2A	1986	1992	15.33	8	-47.81%	21.07	9.59	14.35	1.65	2
	w-3A	1986	1992	6.72	10	48.81%	8.98	4.46	12.54	7.46	2

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Armstrong-4	GK-13	1987	1993	1.98	0.75	-62.12%	2.93	1.03	1.29	0.21	2
	GK-17	1987	1988	0.02	0	-100.00%	0.11	-0.08	0	0	4
Armstrong-5	MP-2	1988	1993	8.1	0.58	-92.84%	11.83	4.37	1.56	-0.41	3
Armstrong-6	1	1988	1995	10	1	-90.00%	15.89	4.11	1.95	0.05	3
Armstrong-7	MP14	1988	1997	0.1	1.63	1530.00%	0.18	0.02	1.93	1.32	1
	MP15	1988	1997	2.6	13.5	419.23%	4.51	0.69	20.78	6.22	1
	MP17	1988	1997	0.1	3.25	3150.00%	0.15	0.05	5.78	0.72	1
	MP21	1988	1997	0.1	0.63	530.00%	0.13	0.07	1.97	-0.72	2
	MP22	1988	1997	0.1	3.15	3050.00%	0.13	0.07	7.11	-0.81	2
	MP23	1988	1997	0.25	20	7900.00%	7.02	-6.52	33.67	6.33	2
	MP24	1988	1997	1	1.2	20.00%	1.88	0.12	2.26	0.14	2
Armstrong-8	c3-a	1988	1998	7	15.1	115.71%	23.21	-9.21	19.83	10.37	2
	md-2	1988	1998	2.7	27.1	903.70%	5.49	-0.09	36.45	17.75	1
Armstrong-9	HU1	1988	1998	27.73	12.03	-56.62%	43.19	12.26	17.92	6.14	2
Armstrong-10	C-11	1989	1995	0.6	0.5	-16.67%	0.77	0.43	0.7	0.3	2
	S-20	1989	1995	7.1	6.7	-5.63%	8.61	5.59	9.72	3.68	2
Armstrong-11	HU1	1990	1997	0.5	0	-100.00%	1.15	-0.15	0	0	4
Armstrong-12	mp2	1991	1995	6.4	0.95	-85.16%	9.73	3.07	1.25	0.65	3
	mph	1991	1995	0.9	2	122.22%	1.54	0.26	2.81	1.19	2
Armstrong-13	41	1990	1995	2.18	0	-100.00%	2.41	1.94	0.01	-0.01	3
	48	1990	1995	2.48	0	-100.00%	3.15	1.81	0.01	-0.01	3
	Unit 2	1990	1995	13	0.74	-94.31%	15.04	10.96	1.04	0.44	3
Armstrong-14	1	1991	1993	4.5	0	-100.00%	6.11	2.89	0	0	4
Armstrong-15	V2	1992	1997	31.5	0.85	-97.30%	40.3	22.7	1.39	0.31	3
Armstrong-16	HU1	1993	1998	4.1	1.35	-67.07%	9.36	-1.16	1.76	0.94	2
Armstrong-17	HU1	1994	1998	0.3	0.25	-16.67%	0.58	0.02	0.54	-0.04	2
Armstrong-18	D1	1994	1998	1.33	0	-100.00%	2.13	0.52	0	0	4
Beaver-1	S-10	1988	1995	29.7	6.6	-77.78%	34.94	24.46	10.96	2.24	3
Butler-1	5W	1986	1991	70	73	4.29%	110.16	29.83	107.36	38.64	2
Butler-2	2W	1984	1989	2	0	-100.00%	2.42	1.58	0	0	4
	5AW	1984	1989	7.5	13.8	84.00%	10.98	4.02	20.47	7.13	2
	8W	1984	1989	11	2.7	-75.45%	14.9	7.1	4.9	0.5	3
Butler-3	S-116	86	1994	14.06	3.7	-73.68%	18.35	9.77	8.23	-0.83	3
	S-13	86	1994	14.1	0	-100.00%	16.23	11.97	0	0	4
	S-200	86	1994	1.91	11.05	478.53%	4.32	-0.5	21.99	0.11	2
	S-91	86	1994	0.99	0	-100.00%	1.2	0.78	0	0	4
	S-95/96	86	1994	1.46	0.55	-62.33%	2.14	0.77	1.66	-0.56	2
Butler-4	DR2	1991	1998	1.59	0	-100.00%	1.98	1.2	0	0	4
Butler-5	1	1991	1998	86	52.4	-39.07%	108.1	63.9	91.03	13.77	2
Cambria-1	MP 9	1990	1995	12.4	0	-100.00%	19.42	5.38	0	0	4

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	Mp 13	1990	1995	30	0	-100.00%	40.68	19.32	0	0	4
Clarion-1	SP-1	1985	1995	25	6	-76.00%	33.45	16.55	9.27	2.73	3
	SP-28	1985	1995	15	9	-40.00%	18.38	11.62	12.93	5.07	2
	SP-5	1985	1995	1	0	-100.00%	1	1	0.11	-0.11	3
	SP-6	1985	1995	3.5	0	-100.00%	5.05	1.95	0	0	4
Clarion-2	1	1986	1989	1.76	0	-100.00%	2.38	1.14	0.13	-0.13	3
Clarion-3	RH-78	1990	1994	3	0	-100.00%	3.61	2.39	0	0	4
Clarion-4	1	1990	1996	0	0	N/A	0.49	-0.49	0	0	4
	2	1990	1996	6	5.35	-10.83%	6.98	5.02	6.19	4.51	2
Clarion-5	DR-1	1990	1992	7.95	16	101.26%	13.93	1.97	21.7	10.3	2
Clarion-6	1	1992	1998	1	0	-100.00%	1.46	0.54	0	0	4
	2	1992	1998	1	0	-100.00%	1.44	0.56	0	0	4
	3	1992	1998	1	0	-100.00%	1.55	0.45	0	0	4
Clearfield-1	unit 1	1985	1998	45.06	13.89	-69.17%	57.49	32.63	23.21	4.57	3
Clearfield-2	W10	1985	1998	5.5	2.2	-60.00%	12.62	-1.62	6.34	-1.62	2
	W42	1985	1998	13.1	3.9	-70.23%	19.84	6.36	5.52	2.28	3
	W43	1985	1998	18	21.3	18.33%	30.22	5.78	30.02	12.58	2
	W44	1985	1998	9.5	12.7	33.68%	20.93	-1.93	18.91	6.49	2
Clearfield-3	SF-1	1986	1998	0.3	0.1	-66.67%	0.38	0.22	0.17	0.03	3
	SF10	1986	1998	0.35	0.07	-80.00%	0.81	-0.11	0.1	0.04	2
	SF4	1986	1998	1	0.1	-90.00%	1.62	0.38	0.52	-0.32	2
	SF6	1986	1998	0.2	2.2	1000.00%	2.53	-2.13	3.7	0.7	2
	SF61	1986	1998	4.35	2.2	-49.43%	6.77	1.93	7.32	-2.92	2
Clearfield-4	TK-3	1985	1997	18	12.4	-31.11%	20.48	15.52	17.59	7.21	2
	tk-18	1985	1997	12	21.7	80.83%	17.36	6.64	27.46	15.94	2
	tk-21	1985	1997	4.5	0.5	-88.89%	6.45	2.55	2.02	-1.02	3
	tk-37	1985	1997	9	4	-55.56%	11.74	6.26	5.32	2.68	3
	tk-4	1985	1997	1.6	0.42	-73.75%	2.24	0.96	0.66	0.18	3
	tk-7	1985	1997	6.5	0	-100.00%	9.14	3.86	0	0	4
Clearfield-5	SV-5	1988	1992	6.3	3.6	-42.86%	8.64	3.96	5.17	2.03	2
	SV-8	1988	1992	8	7.7	-3.75%	12.62	3.38	16.99	-1.59	2
Clearfield-6	R-3	1988	1995	2.95	0.1	-96.61%	4.49	1.4	0.85	-0.65	3
	R-5	1988	1995	3.25	1.1	-66.15%	4.73	1.76	1.62	0.58	3
	R-8	1988	1995	31.8	27.4	-13.84%	38.86	24.73	35.05	19.75	2
Clearfield-7	12	1989	1997	0.3	0.56	86.67%	0.56	0.04	1.19	-0.07	2
	13	1989	1997	37	43.94	18.76%	46.79	27.21	57.55	30.33	2
Clearfield-8	TK4	1990	1996	2.19	0.42	-80.82%	2.68	1.7	0.68	0.16	3
	TK7	1990	1996	3.1	0	-100.00%	5.63	0.57	0	0	4
Clearfield-9	1	1990	1994	6.6	0	-100.00%	9.83	3.37	0	0	4
	2	1990	1994	0.15	0	-100.00%	0.7	-0.4	0	0	4
Clearfield-10	HU 1	1992	1998	8.64	7.15	-17.25%	13.55	3.72	10.99	3.31	2
	HU 2	1992	1998	1	2.11	111.00%	1.83	0.17	2.54	1.68	2
	HU 3	1992	1998	8.68	8.74	0.69%	11.41	5.94	12.1	5.38	2
Clearfield-11	subf-a	1993	1994	2.3	4	73.91%	3.67	0.93	4.56	3.44	2
	subf-b	1993	1994	3	2	-33.33%	4.51	1.49	3.48	0.52	2
	subf-c	1993	1994	7.7	1.8	-76.62%	9.58	5.82	3.37	0.23	3
Clinton-1	13	1981	1995	7	0	-100.00%	11.97	2.03	0	0	4
	15A	1981	1995	10	0	-100.00%	16.1	3.9	0	0	4
	96	1981	1995	2.75	0	-100.00%	4.6	0.9	0.66	-0.66	3
	97	1981	1995	5	0	-100.00%	6.56	3.44	0	0	4
	SNW 1A	1981	1996	36	13.5	-62.50%	45.33	26.67	16.85	10.15	3

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Clinton-2	GR-9	1988	1993	8	0.75	-90.63%	12.58	3.42	3.68	-2.18	2
Clinton-3	SEH-31	1990	1993	16.2	12.4	-23.46%	26.28	6.12	17.13	7.67	2
	SHE-30	1990	1993	1	3	200.00%	1.24	0.76	4.06	1.94	1
Fayette-1	mp-4	1989	1993	2.5	0.5	-80.00%	3.13	1.87	0.51	0.49	3
	mp-5	1989	1993	2	0	-100.00%	2.42	1.58	0	0	4
	mp-6	1989	1993	1	0	-100.00%	1	1	0	0	4
	mp-8	1989	1993	2	0.2	-90.00%	2.21	1.79	0.2	0.2	3
Fayette-2	HU-1	1984	1992	27.5	22.75	-17.27%	32.88	22.12	29.15	16.35	2
Fayette-3	MS100	1988	1995	40	0.1	-99.75%	56.59	23.41	1.58	-1.38	3
Fayette-4	MP6	1988	1993	0.9	0.44	-51.11%	2.17	-0.37	0.78	0.09	2
Fayette-5	mp-4	1988	1998	105	35.07	-66.60%	151.13	58.87	54.5	15.64	3
	mp-hua	1988	1998	45.25	35.07	-22.50%	58.47	32.03	54.5	15.64	2
Fayette-6	MP-1	1988	1994	6.1	9.48	55.41%	8.73	3.47	32.43	-13.47	2
Fayette-7	MP48	1989	1996	53.95	69.4	28.64%	86.49	21.41	90.48	48.32	2
	MP49	1989	1996	10.1	19.5	93.07%	15.76	4.44	28.01	10.99	2
Fayette-8	MP-15	1988	1994	6.85	8.64	26.13%	10.13	3.57	18.11	-0.83	2
Fayette-9	MP-28	1990	1998	26.46	50.6	91.23%	54.68	-1.76	69.93	31.27	2
Fayette-10	mp-1	1989	1992	16.03	3.72	-76.79%	18.5	13.56	5.56	1.88	3
	mp-11	1989	1992	8.88	1.81	-79.62%	15.66	2.1	4.61	-1	2
	mp-2	1989	1992	1.35	0.99	-26.67%	1.79	0.91	1.44	0.53	2
Fayette-11	mp 29	1991	1998	4.13	6.6	59.81%	10.56	-2.3	9.07	4.13	2
Fayette-12	Mp68	1991	1997	0.8	0.36	-55.00%	1.63	-0.03	0.78	-0.06	2
Fayette-13	D5	1991	1995	1.5	1.6	6.67%	2.43	0.57	2.21	0.99	2
Fayette-14	mp-19	1991	1998	0	0	N/A	0.51	-0.51	0	0	4
	mp-57	1991	1998	1.7	11.5	576.47%	3.08	0.32	27.76	-4.76	2
	mp-60	1991	1998	8.8	11.2	27.27%	20.18	-2.58	28.36	-5.96	2
	mp56	1991	1998	7.7	25.3	228.57%	15.13	0.27	49.2	1.4	2
Fayette-15	MD1/MD2	1991	1995	2.8	0	-100.00%	8.94	-3.34	0	0	4
	MD8/BS29	1991	1995	1.1	1.2	9.09%	2.05	0.15	1.53	0.87	2
Fayette-16	MP-42	1994	1996	0.9	0.3	-66.67%	1.52	0.28	0.91	-0.31	2
	MP-8	1994	1996	28.6	44.8	56.64%	42.45	14.75	48.7	40.9	2
Greene-1	MP-51	1987	1988	0.01	0	-100.00%	0.01	0.01	0	0	4
Greene-2	hu1	1989	1994	51.5	3.25	-93.69%	68.92	34.08	5.85	0.65	3
Indiana-1	H	1988	1995	27.3	37.9	38.83%	35.46	19.14	49.63	26.17	2
	J	1988	1995	14.6	16.5	13.01%	19.67	9.53	32.77	0.23	2
	K	1988	1995	3.6	5.7	58.33%	4.24	2.96	9.35	2.05	2
	L	1988	1995	4.2	0.25	-94.05%	6.23	2.17	2.89	-2.39	2
	M	1988	1995	3.1	16.5	432.26%	5.31	0.89	23.26	9.74	1
	N	1988	1995	0.8	0.1	-87.50%	1.58	0.02	0.18	0.02	2
Indiana-2	O	1988	1995	0.01	0	-100.00%	0.05	-0.03	0	0	4
	MP 15	1988	1997	8.1	3.05	-62.35%	11.35	4.85	3.65	2.45	3
Indiana-3	MP 5	1988	1997	31.5	35.7	13.33%	58.16	4.84	61.41	9.99	2
	1 (A)	1992	1998	0	0	N/A	0.8	-0.8	0.37	-0.37	2
Indiana-3	2 (B)	1992	1998	93.2	21.7	-76.72%	143.58	42.82	36.23	7.17	3
	3 (C)	1992	1996	55.8	45	-19.35%	94.21	17.39	55.96	34.04	2
	4 (D)	1992	1998	16.5	4.5	-72.73%	26.01	6.99	6.93	2.07	3
Indiana-4	1	1992	1998	16.1	13.05	-18.94%	19.58	12.62	18.6	7.5	2
	MP 51	1992	1998	14.9	0	-100.00%	20.26	9.54	0	0	4
	MP 52	1992	1998	12.1	3.8	-68.60%	20.76	3.44	5.3	2.3	2
Jefferson-2	MP-13	1986	1996	7.16	6	-16.20%	9.74	4.58	7	5	2
Jefferson-3	HU-1	1989	1992	1	0	-100.00%	2.8	-0.8	0	0	4

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
	HU-2	1989	1992	5.5	0.4	-92.73%	27.34	-16.34	0.6	0.2	2
Jefferson-5	MP-33	1989	1998	12.71	4	-68.53%	13.93	11.5	7.79	0.21	3
	MP-8B	1989	1998	29	27.63	-4.72%	37.1	20.9	46.59	8.67	2
Jefferson-6	S-25	1993	1998	4.7	8.6	82.98%	11.03	-1.63	12.13	5.07	2
	s-34	1993	1998	7.7	0	-100.00%	12.74	2.66	2.35	-2.35	3
Jefferson-7	MP-1	1991	1995	1.8	0.2	-88.89%	2.6	1	0.91	-0.51	3
Lawrence-1	1	1992	1998	4.5	0	-100.00%	6.98	2.02	0	0	4
Somerset-1	SP 16	1989	1998	1	11.75	1075.00%	1.57	0.43	19.53	3.97	1
Somerset-2	1	1993	1998	20	9.8	-51.00%	27.51	12.49	12.03	7.57	3
Venango-1	1	1989	1994	25.8	20	-22.48%	39.92	11.68	62.86	-22.86	2
Washington-1	HU1	1986	1993	26.1	83.83	221.19%	34.32	17.88	113.59	54.06	1
Washington-2	A	1985	1998	19.6	4.75	-75.77%	25.02	14.18	7.94	1.56	3
Washington-3	CV103	1985	1998	580	500	-13.79%	648.27	511.73	500	500	3
	CV4	1985	1998	100	90	-10.00%	148.38	51.62	96.36	83.64	2
Washington-4	MP-1	1989	1998	151.65	34.7	-77.12%	218.62	84.68	49.26	20.14	3
	MP-2	1989	1998	132	0	-100.00%	155.67	108.73	0	0	4
Washington-5	d-1	1987	1996	2.4	1.2	-50.00%	2.4	2.4	1.52	0.88	3
Washington-6	D5	1992	1997	40	30	-25.00%	49.12	30.88	34.06	25.94	2
Washington-7	se1a	1995	1998	0.38	0	-100.00%	1.27	-0.52	0	0	4
Westmoreland-1	MP10	1984	1993	13.95	8.3	-40.50%	18.1	9.8	12.32	4.28	2
	MP7	1984	1993	6.25	16.9	170.40%	16.73	-4.23	21.18	12.62	2
	MP9	1984	1993	0.29	0.9	210.34%	0.52	0.05	1.31	0.49	2
Westmoreland-2	S8	1985	1994	31.5	8.1	-74.29%	40.8	22.2	18.08	-1.88	3
Westmoreland-3	CP2	1986	1990	1	0.75	-25.00%	1.35	0.65	1.03	0.47	2
	Culvert	1986	1986	1	1	0.00%	1.34	0.66	1.54	0.46	2
Westmoreland-4	MD-1	1986	1990	7	3	-57.14%	27.11	-13.11	4.22	1.78	2
	MD-3	1986	1990	2.05	0	-100.00%	16.21	-12.11	0	0	4
	MD-4	1986	1990	4.5	3	-33.33%	8.3	0.7	4.22	1.78	2
	MD-6	1986	1990	41.5	0	-100.00%	105.9	-22.9	0	0	4
	MD-7	1986	1990	29.8	6	-79.87%	55.12	4.48	8.84	3.16	2
Westmoreland-5	HU-1	1986	1996	106	69.95	-34.01%	162.68	49.32	92.5	47.4	2
Westmoreland-6	M	1985	1993	12.92	11.7	-9.44%	20.99	4.85	14.3	9.1	2
	N	1985	1993	3.38	0.65	-80.77%	6.16	0.59	1.38	-0.08	2
Westmoreland-7	MP-3	1986	1991	4.25	1	-76.47%	5.23	3.27	1.41	0.59	3
	MP-4	1986	1991	61.1	120	96.40%	93.89	28.31	148	92	2
Westmoreland-8	MP-4	1987	1998	2	0	-100.00%	2	2	0	0	4
Westmoreland-9	MP-46	1987	1993	78.5	84.5	7.64%	98.75	58.25	105.99	63.01	2
	MP-47	1987	1993	102.7	288.1	180.53%	140.31	65.09	360.96	215.24	1
	MP-51	1987	1993	3.95	1.72	-56.46%	4.62	3.28	3.63	-0.19	2
	MP-52	1987	1993	1.19	3.5	194.12%	1.63	0.74	5.93	1.07	2
	MP-56	1987	1993	8.2	11.05	34.76%	11.49	4.91	23.83	-1.73	2

Permit ID	Monitoring Point ID	Permit Baseline Year	Review Year	Baseline Median	Post-Mining Median	% Change In Median	Baseline Upper Limit	Baseline Lower Limit	Post-Mining Upper Limit	Post-Mining Lower Limit	Evaluation
	MP-60	1987	1993	8.1	5.25	-35.19%	9.71	6.49	9.55	0.95	2
	MP-A	1987	1995	9.3	2.9	-68.82%	11.76	6.84	4.92	0.88	3
Westmore-land-10	MP12	1988	1995	6.9	7.2	4.35%	19.55	-5.75	11.58	2.82	2
Westmore-land-11	MP3	1988	1992	371.33	321.4	-13.45%	474.26	268.4	386.85	255.95	2
Westmore-land-12	MP-1	1988	1995	4	0	-100.00%	12.01	-4.01	0	0	4
	MP-2	1988	1995	0.88	2.9	229.55%	1.32	0.43	4.15	1.65	1
	MP-3	1988	1995	2.99	5.1	70.57%	5.21	0.77	6.05	4.15	2
	MP-4	1988	1995	4	0.54	-86.50%	7.9	0.1	0.93	0.15	2
	MP-5	1988	1995	1.1	5.1	363.64%	4.79	-2.59	7.38	2.82	2
	MP-6	1988	1995	4.7	8.1	72.34%	7.53	1.87	11.7	4.5	2
	MP-A	1988	1995	0.06	2.19	3550.00%	2.19	-2.08	4.34	0.03	2
	MP-B	1988	1995	0	2.19	N/A	0.78	-0.78	3.42	0.95	1
	MP-C	1988	1995	0.18	1.5	733.33%	0.54	-0.19	2.64	0.36	2
	MP-D	1988	1995	0	0.2	N/A	0.06	-0.06	0.38	0.02	2
Westmore-land-13	mp-a	1989	1993	1.1	0.8	-27.27%	1.39	0.81	2.22	-0.62	2
	mp-b	1989	1993	4.8	0.5	-89.58%	6.11	3.49	1.72	-0.72	3
Westmore-land-14	HU-1	1988	1995	43.6	31.62	-27.48%	65.28	21.92	38.41	24.83	2
	MP-5A	1988	1995	3	0.31	-89.67%	3.82	2.18	0.52	0.1	3
Westmore-land-15	SLK-GW-2	1994	1999	1.9	0.4	-78.95%	2.38	1.42	0.71	0.09	3
Westmore-land-16	7										
Westmore-land-17	mp-8	1990	1995	2.75	8.3	201.82%	3.58	1.92	10.69	5.91	1
Westmore-land-18	SW18	1989	1993	1.2	0	-100.00%	1.38	1.02	0	0	4
Westmore-land-18	1	1989	1995	2.5	0.48	-80.80%	3.19	1.81	0.79	0.16	3
	2	1989	1995	2.5	2.78	11.20%	3.22	1.78	4.92	0.63	2
	3	1989	1995	2.8	1.4	-50.00%	5.78	-0.18	2.44	0.35	2
Westmore-land-19	MP16	1993	1999	1.5	1.7	13.33%	1.74	1.26	2.53	0.87	2
	MP5	1993	1999	1.4	0.2	-85.71%	1.99	0.81	1.09	-0.69	2
	MP6	1993	1999	1.2	0.1	-91.67%	1.97	0.43	1.03	-0.83	2
Westmore-land-20	mp-7	1991	1998	3.05	1.22	-60.00%	4.04	2.06	2.39	0.05	2
Westmore-land-21	MP3	1992	1997	1	8.62	762.00%	1.93	0.07	16.27	0.96	2
Westmore-land-22	103	1994	1998	8.3	0	-100.00%	12.16	4.44	0	0	4
	69	1994	1998	35.3	0	-100.00%	50.21	20.39	0.4	-0.4	3
	mp-13	1994	1998	3.45	0	-100.00%	12.47	-5.57	0	0	4
	mp-16	1994	1998	0.5	0	-100.00%	1.08	-0.08	0	0	4

The site-by-site statistical comparisons and mine compliance history suggest that remining is conducted with little risk of worsening water quality. However, those data do not provide insights into the broader overall, statewide water quality impacts. The calculations in Table B.2 are derived from the summary numbers for each water quality parameter in Table B.1. The baseline median loads and post-mining median loads for all discharges are each totaled, and then the sum of the baseline load is subtracted from the post-mining load. Table B.2 shows the results in pounds per day (lbs/day) and the percent change in median loads for the cumulative effects of all the remining discharges. The summary numbers shown in Table B.2 provide insights that are not readily evident from the statistical summaries. For example, the first discharge listed in Table B.1 (permit Allegheny-1, MP ID 10) showed no statistical difference in load despite the fact that the post-mining median load was 2.5 times higher than the baseline median load. The summations depicted in Table B.2 show that even though some median loads have increased, overall there has been a decrease in load, particularly acid load. The decreases on a yearly basis are substantial. Table B.2 suggests that remining has decreased the acid load to streams in Pennsylvania's bituminous coal region by over 5.8 million pounds per year. The annual reductions in metals loads are more modest, but nonetheless important. Iron, manganese and aluminum loads have been reduced by 189,000, 11,400, and 110,400 lbs/yr respectively. These calculations confirm that there has been a substantial cumulative improvement in water quality across the bituminous region as a result of remining.

**Table B.2 : Summary of load data for select water quality parameters (PA Remining Database).**

Parameter	# of Mines	# of Discharges	Total Baseline Median Load	Total Post-Mining Load	Total Change in Load (lbs/day)*	% Change in Median*
Acidity	109	236	26,092	10,174	-15,918	-61
Aluminum	57	121	702	399	-302	-43.09
Iron	104	220	1,485	968	-517	-35
Manganese	75	164	247	216	-31	-13

\* Negative numbers indicate a reduction in load.

In addition to showing the overall environmental benefits of remining, the documentation of BMPs used upgradient from discharges has permitted an evaluation of the effectiveness of

individual and composite BMPs. This is the largest database currently available for evaluation of BMP effectiveness. Twelve BMPs were selected for evaluation because they were commonly used or there is a potential for increased use in the future. These BMPs are listed below and are defined in Section 6 of this manual. The number of discharges affected by each BMP are indicated in parentheses:

- Surface regrading of spoil (156)
- Revegetation (177)
- Deep mine daylighting (170)
- Special handling of acid-forming materials (80)
- Alkaline addition at < 100 tons/acre (67)
- Special water handling facilities (23)
- Passive treatment system construction (2)
- Coal refuse removal (9)
- Biosolids application (6)
- Mining high alkaline strata (13)
- Alkaline addition at >100 tons/acre (11)
- On-site alkaline redistribution (6)

Table B.3 shows the BMPs affecting each discharge point. Multiple BMPs are routinely used in an attempt to improve discharges. Evaluation of the effectiveness of these BMPs in terms of observed outcome and statistical analysis is presented in Section 6.

**Table B.3: BMPs affecting each Monitoring Point**

Permit ID	Monitoring Point ID	BMPs Applied
Allegheny-1	10	Surface regrading and Surface revegetation
	2	Surface regrading and Surface revegetation
Allegheny-2	S-6	Daylighting deep mines, Surface regrading, and Surface revegetation
	S-7	Daylighting deep mines, Surface regrading, and Surface revegetation
Allegheny-3	d-1p	Daylighting deep mines, Surface regrading, and Surface revegetation
Allegheny-4	BS12	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MD1	Special handling of acid-forming material, Surface regrading, and Surface revegetation

<b>Permit ID</b>	<b>Monitoring Point ID</b>	<b>BMPs Applied</b>
	MD2	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Allegheny-5	MP-2	Daylighting deep mines, Surface regrading, and Surface revegetation
Armstrong-1	1A	Surface regrading and Surface revegetation
Armstrong-2	D-1	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
	D-112	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
	D-4	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
Armstrong-3	w-1A	Daylighting deep mines and Special handling of acid-forming material
	w-2A	Daylighting deep mines and Special handling of acid-forming material
	w-3A	Daylighting deep mines and Special handling of acid-forming material
Armstrong-4	GK-13	Surface regrading and Surface revegetation
	GK-17	Surface regrading and Surface revegetation
Armstrong-5	MP-2	Daylighting deep mines, Surface regrading, and Surface revegetation
Armstrong-6	1	Alkaline addition (less than 100 tons/acre), Construction of special water handling facilities, Daylighting deep mines, and Special handling of acid-forming material
Armstrong-7	MP14	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP15	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP17	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Armstrong-7	MP21	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP22	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP23	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP24	Passive treatment system construction, Surface regrading, and Surface revegetation
Armstrong-8	c3-a	Coal refuse removal, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	md-2	Daylighting deep mines and Special handling of acid-forming material
Armstrong-9	HU1	Special handling of acid-forming material, Surface regrading, and Surface revegetation
Armstrong-10	C-11	Daylighting deep mines and Other (see comment field)
	S-20	Daylighting deep mines and Other (see comment field)
Armstrong-11	HU1	Daylighting deep mines, Surface regrading, and Surface revegetation
Armstrong-12	mp2	Special handling of acid-forming material, Surface regrading, and Surface revegetation
	mph	Special handling of acid-forming material, Surface regrading, and Surface revegetation
Armstrong-13	41	Biosolids application, Daylighting deep mines, Surface regrading, and Surface revegetation
	48	Daylighting deep mines, Passive treatment system construction, and Surface revegetation

<b>Permit ID</b>	<b>Monitoring Point ID</b>	<b>BMPs Applied</b>
	Unit 2	Daylighting deep mines, Surface regrading, and Surface revegetation
Armstrong-14	1	Daylighting deep mines, Surface regrading, and Surface revegetation
Armstrong-15	V2	Daylighting deep mines, Surface regrading, and Surface revegetation
Armstrong-16	HU1	Daylighting deep mines, Mining and handling of highly alkaline strata, Other (see comment field), Surface regrading, and Surface revegetation,
Armstrong-17	HU1	Surface regrading and Surface revegetation
Armstrong-18	D1	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Other (see comment field)
Beaver-1	S-10	Daylighting deep mines, Other (see comment field), Surface regrading, and Surface revegetation
Butler-1	5W	Construction of special water handling facilities, Daylighting deep mines, Surface regrading, and Surface revegetation
Butler-2	2W	Surface regrading and Surface revegetation
	5AW	Surface regrading and Surface revegetation
	8W	Surface regrading and Surface revegetation
Butler-3	S-116	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	S-13	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	S-200	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Surface revegetation
	S-91	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Surface revegetation
	S-95/96	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Surface revegetation
Butler-4	DR2	Alkaline addition (less than 100 tons/acre), Construction of special water handling facilities, and Daylighting deep mines
Butler-5	1	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
Cambria-1	MP9	Alkaline addition (less than 100 tons/acre), Construction of special water handling facilities, Daylighting deep mines, and Mining and handling of highly alkaline strata
	MP 13	Alkaline addition (less than 100 tons/acre), Construction of special water handling facilities, Daylighting deep mines, and Mining and handling of highly alkaline strata
Clarion-1	SP-1	Construction of special water handling facilities, Surface regrading, and Surface revegetation
	SP-28	Construction of special water handling facilities, Surface regrading, and Surface revegetation
	SP-5	Construction of special water handling facilities, Surface regrading, and Surface revegetation
	SP-6	Construction of special water handling facilities, Surface regrading, and Surface revegetation
Clarion-2	1	Alkaline addition (less than 100 tons/acre), Construction of special water handling facilities, Surface regrading, and Surface revegetation
Clarion-3	RH-78	Daylighting deep mines, Surface regrading, and Surface revegetation
Clarion-4	1	Construction of special water handling facilities, Daylighting deep mines, Surface regrading, and Surface revegetation

<b>Permit ID</b>	<b>Monitoring Point ID</b>	<b>BMPs Applied</b>
	2	Construction of special water handling facilities, Daylighting deep mines, Surface regrading, and Surface revegetation
Clarion-5	DR-1	Alkaline addition (greater than 100 tons/acre), Special handling of acid-forming material, Surface regrading, and Surface revegetation
Clarion-6	1	Surface regrading and Surface revegetation
	2	Surface regrading and Surface revegetation
	3	Surface regrading and Surface revegetation
Clearfield-1	unit 1	Other (see comment field)
Clearfield-2	W10	Alkaline addition (less than 100 tons/acre), Surface regrading, and Surface revegetation
	W42	Alkaline addition (less than 100 tons/acre), Surface regrading, and Surface revegetation
	W43	Alkaline addition (less than 100 tons/acre), Surface regrading, and Surface revegetation
	W44	Alkaline addition (less than 100 tons/acre), Surface regrading, and Surface revegetation
Clearfield-3	SF-1	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	SF10	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Other (see comment field), Special handling of acid-forming material, Surface regrading, and Surface revegetation
	SF4	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Other (see comment field), Special handling of acid-forming material, Surface regrading, and Surface revegetation
	SF6	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Other (see comment field), Special handling of acid-forming material, Surface regrading, and Surface revegetation
	SF61	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Other (see comment field), Special handling of acid-forming material, Surface regrading, and Surface revegetation
Clearfield-4	TK-3	Surface revegetation
	tk-18	Surface revegetation
	tk-21	Surface revegetation
	tk-37	Surface revegetation
	tk-4	Surface revegetation
	tk-7	Biosolids application and Surface revegetation
Clearfield-5	SV-5	Alkaline addition (less than 100 tons/acre), Special handling of acid-forming material, and Surface regrading
	SV-8	Alkaline addition (less than 100 tons/acre), Special handling of acid-forming material, and Surface revegetation
Clearfield-6	R-3	Daylighting deep mines, Mining and handling of highly alkaline strata, and Surface regrading
	R-5	Daylighting deep mines, Mining and handling of highly alkaline strata, and Surface regrading
	R-8	Coal refuse removal, Daylighting deep mines, and Mining and handling of highly alkaline strata

<b>Permit ID</b>	<b>Monitoring Point ID</b>	<b>BMPs Applied</b>
Clearfield-7	12	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	13	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Clearfield-8	TK4	Alkaline addition (greater than 100 tons/acre), Biosolids application, Surface regrading, and Surface revegetation
	TK7	Alkaline addition (greater than 100 tons/acre), Biosolids application, Surface regrading, and Surface revegetation
Clearfield-9	1	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Special handling of acid-forming material
	2	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Special handling of acid-forming material
Clearfield-10	HU 1	Daylighting deep mines, Surface regrading, and Surface revegetation
	HU 2	Daylighting deep mines, Surface regrading, and Surface revegetation
	HU 3	Daylighting deep mines, Surface regrading, and Surface revegetation
Clearfield-11	subf-a	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Mining and handling of highly alkaline strata, Surface regrading, and Surface revegetation
	subf-b	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Mining and handling of highly alkaline strata, Surface regrading, and Surface revegetation
	subf-c	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Mining and handling of highly alkaline strata, Surface regrading, and Surface revegetation
Clinton-1	96	Alkaline addition (greater than 100 tons/acre), Surface regrading, and Surface revegetation
	97	Alkaline addition (greater than 100 tons/acre), Surface regrading, and Surface revegetation
	13	Alkaline addition (greater than 100 tons/acre), Daylighting deep mines, and Surface revegetation
	15A	Alkaline addition (greater than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	SNW 1A	Alkaline addition (greater than 100 tons/acre), Biosolids application, Daylighting deep mines, and Surface regrading
Clinton-2	GR-9	Alkaline addition (greater than 100 tons/acre), Daylighting deep mines, and Special handling of acid-forming material
	SEH-31	Alkaline addition (greater than 100 tons/acre), Special handling of acid-forming material, and Surface revegetation
	SHE-30	Alkaline addition (greater than 100 tons/acre), Special handling of acid-forming material, and Surface regrading
Fayette-1	mp-4	Daylighting deep mines and Surface revegetation
	mp-5	Daylighting deep mines and Surface revegetation
	mp-6	Daylighting deep mines and Surface revegetation
	mp-8	Daylighting deep mines and Surface revegetation
Fayette-2	HU-1	Alkaline addition (less than 100 tons/acre), Biosolids application, Coal refuse removal, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Fayette-3	MS100	Coal refuse removal, Surface regrading, and Surface revegetation
Fayette-4	MP6	Daylighting deep mines, Surface regrading, and Surface revegetation

<b>Permit ID</b>	<b>Monitoring Point ID</b>	<b>BMPs Applied</b>
Fayette-5	mp-4	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	mp-hua	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Fayette-6	MP-1	Coal refuse removal, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Fayette-7	MP48	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP49	Daylighting deep mines, Surface regrading, and Surface revegetation
Fayette-8	MP-15	Coal refuse removal, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Fayette-9	MP-28	Daylighting deep mines, Surface regrading, and Surface revegetation
Fayette-10	mp-1	Daylighting deep mines, Special handling of acid-forming material, and Surface revegetation
	mp-11	Daylighting deep mines, Special handling of acid-forming material, and Surface revegetation
	mp-2	Daylighting deep mines and Surface revegetation
Fayette-11	mp 29	Daylighting deep mines, Other (see comment field), and Special handling of acid-forming material
Fayette-12	Mp68	Daylighting deep mines
Fayette-13	D5	Daylighting deep mines, Surface regrading, and Surface revegetation
Fayette-14	mp-19	Construction of special water handling facilities, Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	mp-57	Construction of special water handling facilities, Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	mp-60	Construction of special water handling facilities, Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	mp56	Construction of special water handling facilities, Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Fayette-15	MD1/MD2	Daylighting deep mines, Surface regrading, and Surface revegetation
	MD8/BS29	Daylighting deep mines, Surface regrading, and Surface revegetation
Fayette-16	MP-42	Daylighting deep mines
	MP-8	Daylighting deep mines
Greene-1	MP-51	Surface regrading and Surface revegetation
Greene-2	hu1	Mining and handling of highly alkaline strata, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Indiana-1	H	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
	J	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
	K	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
	L	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
	M	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
	N	Alkaline redistribution from on-site sources and Daylighting deep mines
	O	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
Indiana-2	1	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Other (see comment field), Special handling of acid-forming material, Surface regrading, and Surface revegetation

<b>Permit ID</b>	<b>Monitoring Point ID</b>	<b>BMPs Applied</b>
	2	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Other (see comment field), Special handling of acid-forming material, Surface regrading, and Surface revegetation
Indiana-3	1 (A)	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	2 (B)	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	3 (C)	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	4 (D)	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Indiana-4	1	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP 51	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP 52	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Jefferson-2	MP-13	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Surface revegetation
Jefferson-3	HU-1	Alkaline redistribution from on-site sources, Daylighting deep mines, Surface regrading, and Surface revegetation
Jefferson-5	MP-33	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP-8B	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Jefferson-6	S-25	Other (see comment field) and Surface regrading
	s-34	Surface regrading and Surface revegetation
Jefferson-7	MP-1	Surface regrading and Surface revegetation
Lawrence-1	1	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Other (see comment field), Surface regrading, and Surface revegetation
Somerset-1	SP 16	Construction of special water handling facilities, Other (see comment field), Special handling of acid-forming material, Surface regrading, Surface revegetation
Somerset-2	1	Daylighting deep mines, Special handling of acid-forming material, Mining and handling of highly alkaline material
Venango-1	1	Construction of special water handling facilities, Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Washington-1	HU1	Daylighting deep mines, Surface regrading, and Surface revegetation
Washington-2	A	Daylighting deep mines
Washington-3	CV103	Daylighting deep mines, Mining and handling of highly alkaline strata, and Special handling of acid-forming material
	CV4	Daylighting deep mines, Mining and handling of highly alkaline strata, and Special handling of acid-forming material
Washington-4	MP-1	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-2	Daylighting deep mines, Surface regrading, and Surface revegetation
Washington-5	d-1	Daylighting deep mines, Surface regrading, and Surface revegetation
Washington-6	D5	Daylighting deep mines

<b>Permit ID</b>	<b>Monitoring Point ID</b>	<b>BMPs Applied</b>
Washington-7	se1a	Daylighting deep mines, Special handling of acid-forming material, and Surface regrading
Westmoreland-1	MP10	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Special handling of acid-forming material
	MP7	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Special handling of acid-forming material
	MP9	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, and Special handling of acid-forming material
Westmoreland-2	S8	Alkaline addition (less than 100 tons/acre) and Daylighting deep mines
Westmoreland-3	CP2	Coal refuse removal, Surface regrading, and Surface revegetation
	Culvert t	Coal refuse removal, Surface regrading, and Surface revegetation
Westmoreland-4	MD-1	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, and Surface revegetation
	MD-3	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, and Surface revegetation
	MD-4	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, and Surface revegetation
	MD-6	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, and Surface revegetation
	MD-7	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Special handling of acid-forming material, and Surface revegetation
Westmoreland-5	HU-1	Daylighting deep mines
Westmoreland-6	M	Coal refuse removal and Daylighting deep mines
	N	Daylighting deep mines
Westmoreland-7	MP-3	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	MP-4	Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Westmoreland-8	MP-4	Daylighting deep mines
Westmoreland-9	MP-46	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-47	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-51	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-52	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-56	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-60	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-A	Daylighting deep mines, Surface regrading, and Surface revegetation
Westmoreland-10	MP12	Daylighting deep mines, Surface regrading, and Surface revegetation
Westmoreland-11	MP3	Daylighting deep mines, Surface regrading, and Surface revegetation
Westmoreland-12	MP-1	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-2	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation

<b>Permit ID</b>	<b>Monitoring Point ID</b>	<b>BMPs Applied</b>
	MP-3	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-4	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-5	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-6	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-A	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-B	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-C	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-D	Alkaline addition (less than 100 tons/acre), Daylighting deep mines, Surface regrading, and Surface revegetation
Westmoreland-13	mp-a	Surface regrading and Surface revegetation
	mp-b	Surface regrading and Surface revegetation
Westmoreland-14	HU-1	Daylighting deep mines, Surface regrading, and Surface revegetation
	MP-5A	Daylighting deep mines, Surface regrading, and Surface revegetation
Westmoreland-15	SLK-GW-27	Daylighting deep mines, Surface regrading, and Surface revegetation
Westmoreland-16	mp-8	Construction of special water handling facilities, Daylighting deep mines, and Surface revegetation
Westmoreland-17	SW18	Other (see comment field), Surface regrading, and Surface revegetation
Westmoreland-18	1	Construction of special water handling facilities, Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	2	Construction of special water handling facilities, Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	3	Construction of special water handling facilities, Daylighting deep mines, Special handling of acid-forming material, Surface regrading, and Surface revegetation
Westmoreland-19	MP16	Daylighting deep mines
	MP5	Daylighting deep mines
	MP6	Daylighting deep mines
Westmoreland-20	mp-7	Construction of special water handling facilities, Daylighting deep mines, Surface regrading, and Surface revegetation
Westmoreland-21	MP3	Daylighting deep mines
Westmoreland-22	103	Alkaline redistribution from on-site sources, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	69	Alkaline redistribution from on-site sources, Special handling of acid-forming material, Surface regrading, and Surface revegetation
	mp-13	Alkaline redistribution from on-site sources, Special handling of acid-forming material, and Surface revegetation
	mp-16	Alkaline redistribution from on-site sources, Special handling of acid-forming material, Surface regrading, and Surface revegetation

